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A NESTING OF THE BLUE-WINGED WARBLER IN MASSACHUSETTS.

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IN A trip for general bird-observation to Sudbury, Massachusetts, on May 19, 1909, upon taking a different road back to the railroad station in the afternoon from that which I had intended to take, I came upon two warblers calling near the roadside, whose call-notes attracted my notice as not so familiar that I could name the species from which they came. So turning up a side road a few steps and bringing my field glass upon one of the two, I perceived that it was apparently a Blue-winged Warbler (*Vermivora pinus*). The second bird, which was undoubtedly the female, at once disappeared from sight, and I did not have an opportunity to view her. But I was able to keep in sight the male bird in his successive flights from one tree to another and in his movements through the branches of a good-sized elm in which he busied himself in obtaining food. The elm was one of several which stand immediately by the State highway through Sudbury to Marlboro. As I obtained full and near views of him again and again in his successive perches, once at not longer range than twenty-five feet and only slightly above the level of my eye, my first identification of the bird was established beyond a doubt. Presently the warbler gave the locust-like song for which I had been waiting, gave it a half-dozen times, *swe-e-e-e-e ze-e-e-e*, quite as described by Mr. F. L. Burns in Chapman's 'Warblers of North America.' The movements of the bird

were active but not restless. Twice an automobile, passing on the highway under the elms, started the Bluewing from his busy search for food among the leaves, and he flew back each time to the sapling in which I had had my first view of him. The return to the roadside elms, however, was quickly made each time. Before I passed on to get my train I had spent a half-hour with this warbler, enjoying my first experience with the species, very rare as a visitant to Massachusetts, so far as records indicate, and never having been known to nest within the borders of the State.

Mr. William Brewster, in a foot-note to Minot's 'Land-Birds and Game-Birds of New England,' states: "This Warbler is a common summer resident of southern Connecticut, but is not known to occur regularly north of Hartford, and is most numerous in the country immediately bordering on the Sound and in the lower valley of the Connecticut River. Several specimens have been taken in Massachusetts, where, however, the species does not seem to have attained a permanent foothold."

There are only six recorded occurrences of the Blue-winged Warbler in Massachusetts. Four of these are given in Messrs. Howe and Allen's 'Birds of Massachusetts,' published in 1901, namely: "a small flock" at Dedham about the 12th or 15th of May, 1857, found by E. A. Samuels; a male bird captured at West Roxbury on May 17, 1878, by Mr. C. N. Hammond; one seen at Dorchester on May 15, 1897, by Forster H. Brackett; and one taken at Taunton by J. H. Morse (date unknown). To these occurrences Mr. Wells W. Cooke, in his 'Distribution and Migration of North American Warblers,' adds a fifth, that of a bird seen at Framingham on May 13, 1896 (observer's name not given), and 'The Auk' of July, 1902, p. 291, adds a sixth, that of a singing male bird seen at Waverly on May 29, 1902, by Mr. Guy Emerson.

To my friend, Mr. Eugene E. Caduc, in whose ripe intelligence and patient sagacity as a bird-observer I had acquired a full measure of confidence through many rambles afield with him, I conveyed the news of my happy discovery, and two days later, on May 21, he visited the haunt by the roadside where I had seen the pair and heard the male bird sing. I was unable to accompany him. His written statement of his trip in part is: "I came upon the birds about 2.30 in the afternoon. I soon discovered that the female was

busy collecting nesting-material. I watched her for perhaps three-quarters of an hour. Three different times she disappeared in the underbrush and returned to the roadside for more material. I was not able to locate the nest, however. During all this time the male bird perched on a nearby tree singing, but took no part in the building of the nest. A dog in chase of a chipmunk frightened them, and I saw them no more." Mr. Caduc describes the female bird as similar in coloration to the male bird, only slightly duller.

On May 26, about 10 A. M., I again visited the spot and after waiting a half-hour heard the Bluewing's song. The singing was maintained for about a half-hour, and then there was another equal period when I could not hear the song or get evidence of the bird. The female bird was neither seen nor heard. The male moved about through the same trees as before, but took a somewhat wider range. The singing haunt of the male consisted of a small mowing-plot cornering at the roadside and backed by a pasture of considerable extent containing an orchard of old apple trees which reached back in succession for nearly a quarter of a mile. The pasture was dotted also with chestnut trees. Beside the mowing was a swampy hollow through which flowed a brook coming down through the pasture from a wooded hillside in the rear. On the other side of the mowing-plot the land rose also to pasture and to second-growth woodland composed of white and pitch pines, birches, oaks, and cedars, with berry bushes as undergrowth and the surface where exposed covered with dry moss. The elms, which proved a favorite feeding and singing place of the male bird, stood beside the highway in front of this woodland. Thus at the spot chosen by this pair of warblers there is much diversity of natural feature. The location is also within a mile and in sight of the old Wayside Inn made famous by Longfellow in his poem entitled 'Tales of a Wayside Inn.' On this second occasion in the forenoon I found these other warbler voices united with the Bluewing's, the Goldenwing's, the Nashville's, the Yellow's, the Chestnut-side's, the Black-throated Green's, the Oven-bird's, the Yellow-throat's, and the Redstart's.

On May 29, upon further expressions of urgent desire on my part for more knowledge as to the nesting of these Bluewings, Mr. Caduc made a second visit to the locality, arriving about 9.30 in

company with Mr. and Mrs. Edmund E. Bridge. They found the male bird feeding and in song in a pasture perhaps fifty feet from the highway. He seemed to be dividing his time between the apple and the elm trees. Mr. Caduc states that all three had an excellent view of the warbler before he flew away and that the others then continued their walk, while he set himself to the task of locating the nest. His statement is: "I remained to await developments. I found a seat on a stone, well screened by a barberry bush, and waited for a half-hour, when the male bird returned to the same locality as before. For three-quarters of an hour he continued feeding and uttering the same song as when first seen. He then changed to a call-note not unlike that of a Chipping Sparrow. Very soon I detected an answer being made and the female bird was seen for the first time [that day]. She flew to a pool in a swampy section of the same pasture and bathed freely. Then alighting on the same tree with her mate she was completing her toilet, when to my surprise she flew to a black ant hill and took a dust bath much after the manner of the House Sparrow. This done, she again returned to the pool and drank freely, but I could not see that she bathed again. Up to this time I do not think that she had eaten anything, but she now began searching for food, and in a more hurried manner than her mate. Passing from tree to tree both birds soon showed me my real work had now begun. I had no difficulty in following them, however, often being within three or four feet of them, as they moved on feeding from one tree to another. They did not seem to fear me. Neither bird gave voice to any note whatever as over the pasture they led me and then about two hundred feet into a wood. This wood was composed of chestnuts, oaks, maples, birches, and white pines, mostly of second growth, with considerable underbrush including tangles of horse-briar and wild grape, and with a brook flowing near by. Here the female bird took to the ground and finally was lost to view behind a decayed stump about a foot high and a growth of fern. A wagon-road had been cut through the wood, and this I had been able to follow up to this point. But in order to follow her course through the underbrush I was obliged to assume a crouching attitude, and it became necessary to approach on all-fours, as her point of disappearance was about fifteen feet from the road. In this manner

I proceeded to the stump, when she took wing. Carefully parting the ferns, I saw a nest containing four eggs of the warbler and an egg of a Cowbird. The latter I removed, and on breaking it I could discover no sign of incubation. The four eggs were all of about the same shape, but very much smaller at one end. Three were well mottled with brown spots, and the fourth appeared to be pure white. The nest was of coarse material lined with fine strips of bark or something of that kind. It was a cup-shaped structure, built on a lump of earth held securely in position by two exposed roots of the stump, and raised two or three inches from the ground. It was further protected by the ferns. From the place by the roadside, from which the pair started and where the male bird was found each time singing and the female had bathed, to the nest-location was about twelve hundred feet. In the immediate vicinity of the nest were also the nests of Wood Thrush, Oven-bird, Towhee, Yellow Warbler, and Flicker."

Mr. Caduc thus accomplished his purpose, which was "to camp with the birds" until he found their nest, and he brought back to me in most satisfying fulness the details as given above. But although he had furnished me a careful description of the location of the nest, when I went again on May 31, I came away without seeing it, not finding it readily and fearing to trample about the haunt lest I disturb the mother-bird and be the means of failure to the nesting. And the one important thing, as we regarded it, was that the nesting should go successfully through and the young be reared. Thereby the planting of the species in this locality or in the State might be secured. We, therefore, imparted our knowledge of the nesting site to no one; for had we done so, the nest was no longer in our keeping, and we could not foresee what might happen to prevent the rearing of this family. So I made no further visits to the place and left it with Mr. Caduc to make such periodical visits as would ensure a knowledge, if possible, of how the nesting progressed and what its issue would be. How well he timed his visits for gaining all the essential facts, extracts from his letters to me after I had left the city will show.

On this last visit which I made I heard the male Bluewing sing as usual by the roadside, a spot so far away from the nest, nearly a quarter of a mile, indeed, that his mate could never have heard his voice, as day after day he sang there.

In the vicinity of the nesting spot of the Bluewings I heard among other songs the songs of Wood Thrush, Rose-breasted Grosbeak, and Scarlet Tanager. Two Canadian Warblers also sang there. Whether these were summer resident or migrant birds I could not determine at that time. Also not far away I came upon a silent Hermit Thrush. The date was late for a migrant bird, and it may have been, therefore, a summer resident. Two miles away in the same town on May 12 I had heard a Hermit Thrush sing as freely and finely at mid-day as the voices of the species are regularly heard in the White Mountains, and I could not think that this beautiful songster was other than a resident bird. In three separate pieces of woodland in this town of Sudbury the song of the Blue-headed Vireo was also heard up to the end of May, and one pair of the birds was seen, indicating probable nestings of that species.

On June 6 the next visit to the nest was made by Mr. Caduc. He wrote me: "I found the female bird at home and on the nest. The ferns had been gnawed off close to the ground by some animal. There were but four eggs in the nest. (Our query had been whether it would be found that another egg had been laid by the warbler or, perchance, that the Cowbird had deposited another egg.) I was not able to either see or hear the male bird."

On June 9 another visit was made. Mr. Caduc writes: "Again the mother bird was at home to receive me. As she left the nest, I observed that there were three little bald birdlings there and that the last egg had a crack in it, showing the wee thing in frantic efforts to be liberated. I remained just long enough to see this and then left. Again she gave no cry of alarm on leaving the nest. She lit on a bramble near by, and I could see with my glass that she was all of a tremble. I found other visitors also at the little nest and learned what it was that destroyed the ferns, a mother cottontail and four little ones. They were having such a feast on what was left I hated to frighten them away. There were young in the Wood Thrush's nest also. I also found near the thrush's nest a nest of flying squirrels."

Mr. Caduc again visited the nest on June 15. He writes: "Well, Mr. and Mrs. Bluewing and their four children send you their greeting and hope you have enjoyed yourself to-day as much as

they have. Now for details. I arrived at the little pool of water by the roadside at about 3.15, and there was the male bird having his bath. It required just thirteen minutes after I arrived for him to finish his toilet. I required no glass to see him. I simply leaned on the fence-rail and looked down on him. As soon as he had finished he just quietly stole away without my being able to detect him in the act. I then started for the nest. No one was at home when I arrived but the babies; but four pair of bright little eyes watched me intently, not at all alarmed, as shown by one of them standing up and shaking himself. I then had a chance to see that this one at least was feathered enough to show the prevailing colors of the parents, not so bright, of course, a sort of dusky olive on the back and the underparts of a buff tinge. I had been there but a short time when one of the parent birds came with a mouthful of green worms that were fed out to two of the nestlings, the largest bird not being chosen this time. This was exactly 3.46 by my watch. Soon both parent birds were busy feeding and until 4.45 the little ones were fed on an average every minute and a half. It seemed to me also as if each parent fed the same two little ones all the time. During the hour's observation there was not a sound from either the old or the young birds. All the little ones stood up to get their food, so I could see that they all showed about the same color. Two, however, were quite a little larger than the others. None of the little ones left the nest, but I have not the slightest idea they will be there on my next call, and I may not see them again; but I regard them now as out of danger."

On his next visit, June 18, Mr. Caduc found the nest empty. The young were being fed by one of the parents in a clump of trees in a small clearing of the wood not far from the nesting-site. He states: "I saw all four of the young birds, but only one parent bird. The young were perched about three feet from the ground, and when the parent bird appeared with food, they flew to her with open mouths. If they made any calls, I failed to hear them. Indeed, I cannot remember having heard a sound or call of any kind from either of the birds since the day I found the nest." Mr. Caduc brought the empty nest with him to Boston. He describes the nest as not just like the one described by Mr. Burns in Chapman's 'Warblers,' stating, "I see no evidence of the lining being

laid across, and the leaves are so old and withered it is difficult to tell how they are arranged. Probably before the young had been raised and the nest trodden out of shape, it might have appeared more like the nest described by Mr. Burns. It is in pretty good condition. A small part of it broke off as I was taking it up, but it is not damaged much. The nest, as it rested, was backed up to a decayed stump between two exposed roots. In removing it the back became somewhat damaged and fell off as soon as removed. In its original location it had more of a cup-shape than now. It seems to have spread some, but by pressing the two ends gently you can get a very correct idea of how it looked when discovered."

The six visits of Mr. Caduc, therefore, resulted in determining these six essential facts: the building of a nest; the location of the nest and its holding four eggs of the warbler and a Cowbird's egg, the destruction of the latter removing a menace to the successful rearing of the family; that four eggs in this nesting was the complete set; that three of the birdlings were hatched and the fourth hatching; that they had thriven and were almost grown; and that they were safely on the wing under the care of one at least of the parent birds. A happy consummation of the birds' choice in pressing their way onward into Massachusetts and selecting this spot in Sudbury for their nesting. The consummation furnishes also a basis for a hope that we may soon again have another nesting of Blue-winged Warblers chronicled in the State and in time, perhaps, another warbler added to the list of those regularly resident in Massachusetts. We have done nothing to cut off such a hope, while we have secured all the important facts pertaining to this first recorded nesting of the species within the State.

To Mr. Caduc we are wholly indebted for the full knowledge of this first nesting, and he has kindly permitted me to give it to the readers of 'The Auk.' Each trip made, and six were taken, consisted of forty miles by rail and a three-mile walk. Sudbury is situated twenty miles westward from Boston.

With respect to the date of this nesting and its successive stages it may be well to condense the facts. The birds were found on May 19. The female was seen carrying nest-material on May 21. Presumably the nest was completed as early as May 24. The nest was located and contained four eggs on May 29. The eggs

were presumably laid, May 26 to 29. Incubation probably began on May 29. Eleven days later, June 9, there were three birdlings and the fourth egg was hatching. Period of incubation was ten or eleven days. Six days later the nestlings were well grown. Three days later, June 18, the nest was empty and the birdlings were upon boughs of near trees fed by one of the parent birds. The nestlings left the nest on the eighth or ninth day.

This nesting was a week later than that given account of by Mr. B. S. Bowdish at Demarest, New Jersey, in 1905 [Auk, Jan., 1906, p. 16]. On May 12 Mr. Bowdish found the female "with a dead oak leaf in her bill." On the 15th he found the nest "built under a dead branch, near the base of a small cedar, and entirely covered with dead oak leaves, so laid as to leave only a mouse-like entrance. At this time no eggs had been laid, the nest seeming to be just finished. The first egg was laid on the 19th, and one egg added each day, the fifth and last egg being deposited May 23. The eggs hatched June 2, the tenth day after deposition." On the other hand this nesting was four days earlier than that which Mr. Burns gives in detail as watched by him at Berwyn, Pennsylvania, in which instance five young were just hatched on June 13 at 6.30 P. M. and the nest was vacated on June 21 at 6.12 P. M., eight days after incubation was completed.

The Sudbury birds would seem, therefore, to have lost no time in choosing a nesting-spot and carrying forward their happy plan for a family. This promptness of action, if it should not be termed earliness of procedure, suggests the thought that perhaps the ground was not entirely strange to them. This idea is somewhat strengthened by the record of the Blue-winged Warbler seen at Framingham on May 13, 1896. The latter town and Sudbury adjoin.

Although the Sudbury male Blue-winged Warbler is the only one of the species which I have spent time with and seen again and again upon three successive visits, yet on May 10, 1905, at Belmont, I had a momentary very clear view of a warbler of this species. I wrote down a description of its plumage on the spot, and I have had no reason to doubt the identification in the subsequent years. But as I could not announce the bird as a Bluewing with absolute certainty, I have not made the record public until now. The Belmont bird was lost to view after I had had a moment's distinct sight of it, and I could not find it again on that day neither on the next day.

AN INQUIRY INTO THE HISTORY OF THE CURRENT ENGLISH NAMES OF NORTH AMERICAN LAND BIRDS.

BY SPENCER TROTTER.

TECHNICAL nomenclature is the embodiment of that orderly and definite arrangement of knowledge which constitutes a science. It serves to symbolize a conception of the relationships that exist between living beings, one with another, and is at once the expression of a logical system of classification; a working basis for the ideal scheme which the mind constructs from observed facts. It is eminently a rational process. In direct contrast to this is the vernacular — the loose, quite indefinite and often haphazard way of naming things, that has its root in the soil of common life. The stratum out of which it springs is emotional rather than rational. In ornithology these two contrasted forms of the embodied ideal — the technical or scientific and the vernacular names — have been of more equal value than in many other branches of natural history, from the fact that birds have always presented themselves to men's minds in a peculiarly attractive way. Most of us think of the various kinds of birds, certainly of the more familiar ones, in terms of the vernacular rather than in the garb of science. A Song Sparrow is a Song Sparrow more often than a *Melospiza melodia* as well to the ornithologist as to the untechnical wayfarer.

A respectable antiquity attaches itself to the vernacular. Long before the scientific mind had invaded the field of natural history the folk had given voice to its ideas about various animate and inanimate things. A vast vocabulary of popular names was an early heritage of the common people. With this stock of names and notions about Old World birds the colonists in Virginia and New England were fairly well equipped, and the more familiar birds of the new country soon received names indicative of some trait or likeness to certain of the Old World varieties. Mark Catesby in his History of Carolina was the first one to give any substantial account of American birds, and his work contains an

array of names, some of them more or less familiar in the speech of to-day. To William Bartram we owe a large number of our common bird names, names that reached the intellectual world of eighteenth century England through the works of Edwards, Pennant and Latham. Alexander Wilson was likewise a large debtor to Bartram for the names of numerous species, but he blazed his own trail by applying names to species discovered by himself as well as in the recasting of many Bartramian names.

In the present inquiry I have arranged the matter of the history of our American bird names under the following six heads —

I. Names of Old English origin applied to American Birds.

II. Names derived from a Latin equivalent.

III. Names suggested by voice.

IV. Names suggested by some peculiar habit or habitat.

V. Names suggested by color or other external feature.

VI. Names suggested by geographical locality (place-names) or in honor of some person.

I. NAMES OF OLD ENGLISH ORIGIN.

Many of the Catesbian names of birds undoubtedly originated in the vernacular of the colonists and some are clearly of Old English ancestry. In the main they are of generic rather than of specific application, as is the case with most of the folk terms for natural objects. The specific distinction is often one of locality merely, as for example "the cuckow of Carolina." Relationship is often broadly recognized by the people and embodied in a general name with appropriate qualifications to indicate minor differences or differences in distribution. The "species" of the *profanum vulgus*, however, more nearly corresponds to the generic conception of the naturalist, even in some cases to the idea embodied in the term "family."

A number of these Old World bird names, given to American birds, appear very early in the history of English speech. In a vocabulary compiled by Archbishop Ælfric toward the close of the tenth century (955–1020 A. D.) there is a *Nomina Avium* in which a number of bird names appear, though somewhat different from their modern form. In this list the Robin Redbreast is called

"rudduc" or "ruddock" which long continued to be its general English name and is probably still alive in local dialects. The word appears as a variant of the modern "ruddy," refering no doubt to the russet of the bird's breast. The earliest recorded instance of the use of the popular epithet "robin," which as a word of endearment has been transferred to many different birds thoughout the English speaking world, occurs in the *Nomina Avium* of an English vocabulary of the fifteenth century where the name appears as "robynet redbreast," literally "little robin redbreast." Our American Robin was known to the early southern colonists as the "Fieldfare" and is so termed by Catesby ("The Fieldfare of Carolina," Vol. I, 29). The bird has many of the qualities of the Fieldfare, and like its British congener came from the north in autumn, scattering over the cleared lands in loose flocks. William Bartram (Travels, 290) speaks of it as the "Fieldfare or robin redbreast," and Kalm mentions it under the latter name (English Trans., II, 90). Our familiar name "robin" is thus a contraction of the "robin redbreast" of old English speech.

In the *Nomina Avium* of Ælfric the cuckoo occurs as "geac." In some provincial dialects it is still called a "gowk," a survival of the little altered Anglo-Saxon name. "Cuckoo" or "Cuckow" (the latter an earlier form of the name and given as such by Catesby) is undoubtedly derived through later Norman speech (French *coucoü*; Italian *cucco* or *cuculo*; old English *cuccu*). The German name *kuckuk* or *koekoek*, the Danish *kukker* or *gjög*, and the Swedish *gök* are clearly allied to the Anglo-Saxon *geac* or *gowk*, all being undoubted variants expressive of the bird's voice, and the same is true of "cuckoo" and its variants.[1] The colonists were not deceived in giving to the American species its rightful name, though Catesby may have been the first to bestow it.

"Crow" appears in Ælfric's vocabulary as *crawe*; "kite" as *glida* and *glede*, the last name continuing down to the fifteenth century. The Anglo Saxon *staern* or *staer* (later *stare*) has become the modern "starling."

A manuscript in the Royal Library at Brussels, of eleventh

[1] To call a man a "gawk" (simpleton) appears equivalent to calling him a "cuckoo," a term of no uncertain meaning in the old days.

century date, contains a number of bird names among which are the *Gos-hafoc* (literally "Goose hawk") modernized to "Goshawk," and *Spear-hafoc* ("Sparrow hawk"). It seems curious that our little American Sparrow Hawk has not borne the name of its near relative the Kestrel rather than that of the quite different Sparrow Hawk of the Old World. "Turtle" was an old name for the Dove and appears as such in Catesby ("The Turtle of Carolina," I, 24). It originated, as Skeat observes, from an effort to express the cooing note and is altogether different from the word used to designate the reptile of the same name. This last was rendered by English sailors into "turtle" from the Spanish *tortuga*.

Wren, Sparrow and Swallow appear in these old vocabularies as *Wraenna*, *Spearwa* and *Swealewe*. The first of these names Skeat asserts is derived from a base *Wrin*, to squeal, chirp or whine, in allusion to the bird's voice. A curious old belief existed among the folk of several European countries that the Wren was the "King of Birds." Hence, probably the generic term *Regulus* formerly applied to various species of Wren, and, likewise, its English equivalent "Kinglet." "Sparrow" is literally a "flutterer" (*Spar*, to quiver), and "Swallow" means a "tosser, or mover to and fro; from its flight" (Skeat). "Lark" has been softened down from the Old English "laverok" or "laverock" (Anglo-Saxon *laverce*), literally "a Worker of Guile," from some old superstition regarding the bird as of ill omen. The bestowal of this name upon an American bird allied to the starlings was no doubt due to an effort on the part of the early settlers to name birds after the more familiar ones of the homeland. The ground-nesting habits, the long hind claw, the loud twittering flight notes and clear song of the American bird may have given some slight reason for this incongruous title.

"Thrush" with its variants "throstle" and "throstle-kok," as applied to the Song Thrush (*Turdus musicus*) of Europe, is an old word and appears in its older forms in a treatise by Walter de Biblesworth at the end of the thirteenth century. In the Brussels Manuscript "throstle" seems to refer to the Missel Thrush (*Turdus viscivorus*). The Song Thrush is also referred to by its other old English name of "Maviz" (later "Mavis"). In this same treatise of de Biblesworth's the European Blackbird (*Turdus merula*) is

spoken of as "osel" or "hosel-brit," and likewise by its Old English Name of "Merle." Later it became "Ousel-cock" as in the quaint ditty in Midsummer-Nights' Dream —

> "The ousel-cock, so black of hue,
> With orange-tawny bill,
> The throstle with his note so true,
> The wren with little quill.
> The finch, the sparrow, and the lark,
> The plain-song cuckoo grey,
> Whose note full many a man doth mark,
> And dares not answer, nay; . . . ."

"Mawys" or "Mavis" as a dialectic name has lasted down to the present day in the counties of East England. It seems curious that it was not transferred to any American thrush notably the Wood Thrush. "Osel" is clearly the parent word of the modern "Ousel" and in this latter form is still applied to an allied species of the European Blackbird — the Ring-ousel (*T. torquatus*), as well as to a distinct, though related, family — the Dippers or Water Ousels (Cinclidæ).

Without doubt the word "Thrasher," applied to the birds of the American genus *Toxostoma*, is a variant of "Thrush" and "Throstle," for we find "Thrushel" and "Thrusher" as variants in the Provincial English dialects. The term "Thrasher" occurs in Barton's 'Fragments' (1799), and Wilson also uses the name as a vernacular in his account of the Brown Thrush or "Ferruginous Thrush" (*Toxostoma rufum*) as he calls it, both of which facts are clear evidence as to the early current use of this common name for the species in question. Catesby figures the bird under the title "Fox-coloured Thrush" (I, 28). In the South it is known here and there as the "Sandy Mocker" and formerly as the "French Mockingbird," this last from the fact that its song was considered inferior to that of the true Mockingbird (*Mimus polyglottos*) — all things French being regarded with a certain contempt by the English colonists. There is a curious suggestion of the throstle's song in the song of our Brown Thrasher, a fact also noted by Wilson, and this may have given rise to the current vernacular name.

In a metrical vocabulary, supposedly of the fourteenth century, "sparrow" appears in its modern form; likewise "larke," "pye"

(the Magpie, "mag" being a contraction of "Magot" or "Madge," a feminine name formerly bestowed upon this bird), "revyn" (raven), "parthryd," and "quale." "Jay" also appears in its present day spelling and with its Latin equivalent *Graculusque.* which may be the origin of our modern word "Grackle." "Jay" is from old French "gai" equivalent to "gay" (plumage).

In a *Nominale,* or list of words, of fifteenth century date we find "wagsterd" (Wagtail), "nuthage" (Nuthatch), and "buntyle" (Bunting). In a curious pictorial vocabulary, also of the fifteenth century, "Kingfisher" appears as "kynges-fychere" and "Woodpecker" as "wodake" or "woodhock." Our "Redstart" evidently received its name by suggestion from a very different bird of the Old World (*Ruticilla phœnicurus*). It is so called by Catesby (I, 67). "Start" is from Anglo-Saxon "steort" — a tail. "Titmouse" has been transferred to various American species of the family (Catesby figures the "Crested Titmouse," I, 57), the prefix "tit" meaning small. "Mouse" is from Anglo-Saxon *mâse,* a name, according to Skeat, for several kinds of small birds and not to be confounded with the mammal of the same name. Hence, the plural "titmouses," not "titmice," is the proper form though usage has established it otherwise. "Shrike" is another name transferred from European to allied American species. The name probably had its origin in the voice of this bird or of some thrush, and later bestowed upon the members of the Laniidæ (see Newton, Dict. of Birds, 843). "Martin" (and its older form "Martlet") was evidently a nickname applied to a European Swallow (*Chelidon urbica*) and given by the colonists to our species of the genus *Progne.* Bartram calls the bird "The great purple martin."

"Blackbird," applied to certain American species of Icteridæ, is a name suggested purely by color. Catesby early gave to our *Agelaius phœniceus* its more nearly correct title of "Red-wing'd Starling" (I, 13). Kalm (Forster) uses the older form "stare" (Eng. Trans., II, 73–79) and likewise refers to the species of *Quiscalus* as "blackbirds," remarking that "The English call them *blackbirds*" (Eng. Trans., I, 291). Our Goldfinch appears first in Catesby as "The American Goldfinch" (I, 43), the name clearly borrowed from the Old World *Carduelis elegans.* "Siskin" in like manner comes from the Old World, the word being originally

of Scandinavian origin and meaning "chirper" or "piper." "Snow Bunting" is the old name of *Plectrophenax nivalis* and should rightly replace the fanciful "Snowflake." Our "Tree Sparrow" is the result of a confusion of the American species (*Spizella monticola*) with the Mountain or Tree Sparrow of Europe (*Passer montanus*). This was corrected by Pennant, but the name "tree" was retained.

A rather curious case of name transfer is that of our Yellow-breasted Chat (*Icteria virens*). The bird first appears under this title in Catesby's Work (I, 50), and was evidently so-called by him in a mistaken idea that it was related to the birds of the same name belonging to the European genus *Saxicola*. This fact is made evident by the Latin word *œnanthe* used in the descriptive designation.

The name "buzzard" as applied to the Turkey Vulture appears early in the literature of American birds. Catesby calls it "Turkey Buzzard" (I, 6). As an old English name of Norman French derivation (*Busard*, Latin *Buteo*) it had, as Newton points out (Dict. of Birds, 767), a definite meaning in relation to the old sport of "hawking." Birds of the genera *Buteo* and *Circus* (Harrier) were styled "buzzards" (more especially the species of the former genus), of slow and heavy flight, and "were regarded with infinite scorn, and hence in common English to call a man a buzbard is to denounce him as stupid." With the exception of eagles and owls and a few kites all birds of prey in this country are termed "hawks," and "buzzard" has been relegated to this slow-moving, carrion-feeding species.

II. Names Derived from a Latin Equivalent.

Several of our English bird names have come into every-day speech by the anglicizing of their generic titles. The Linnæan genus *Oriolus* (from "Oriole," Latin *aurum*, *gold*) included certain species of Icteridæ which though very different from the European *Oriolus galbula*, still bear its name. "Junco" and "Vireo" are anglicized generic names. The word "grackle" applied to certain species of our Icteridæ appears to be an anglicized word derived from the Linnæan genus *Gracula*. The word

originally referred to the daw or jackdaw of Europe and the relationship between the American birds and the European species, though somewhat distant, was recognized by early writers. *Quiscalus quiscula* appears in Catesby as "The Purple Jackdaw" (I, 12). Bartram calls it the "Lesser purple jackdaw or crow blackbird" (the first notice I have found of this last common name). Wilson calls it the "Purple Grackle," from which source it has without doubt spread into the current vernacular of ornithology, though not into the speech of the people at large.

The name "Parula" recently in vogue for the warblers of the genus *Compsothlypis* is clearly borrowed from the old Bonaparte genus *Parula* (diminutive of titmouse). The bird (*C. americana*) has appeared under various titles — "the Finch Creeper" of Catesby (I, 64), "the various coloured little finch creeper" of Bartram (Travels, 292), and the "Blue Yellow-backed Warbler" of Wilson, Audubon and later authors.

In "Kinglet" we have a word rendered into English from the generic name *Regulus* (Cuvier) though its use is somewhat recent, "wren" being the vernacular designation of the species of *Regulus* until a comparatively late period. Edwards (Gleanings, V, 95) refers to the species as "Le Roitelet" (also Buffon).

"Tanager" is another derived word from the Linnæan genus *Tanagra*, probably of Brazilian origin (Marcgrave, Hist. Rer. Nat. Bras., 214).

III. NAMES SUGGESTED BY VOICE.

In this group, and in the ones that follow, the vernacular names are more specific in their nature, indicative of some peculiar feature or habit of a species. Bird voices have been embodied from the earliest times in various expressive syllables which have given rise to a variety of names. "Cuckoo" was one of these, and in like manner "Wren," "Crow" and other bird names of the Old World. The babble of our voluble Chat, as we have seen, undoubtedly led Catesby to ally the bird with a group of very different species. In America the colonists soon found names by which to designate a number of birds from peculiarities in their vocal performances. Latham speaks of the "Phœbe-bird" (*Sayornis*

fuscus), unquestionably given him by some transatlantic correspondent. Our name "pewee" is given "pewit" by Bartram. Wilson named the "Wood Pewee" (*Contopus virens*) from its voice and its habitat.

The older writers give "Rice-bird" as the chief caption of *Dolichonyx oxyzivorus* (Catesby, I, 14) and Bartram calls the male "the pied rice bird." Wilson calls it "Rice bird," but mentions its other names — "Boblink" and "Reedbird." Nuttall, as a good New Englander, gives "Bob-o-link" as its principal name, and Barton, in his 'Fragments,' has "Bob-Lincoln." I find this last title also in a sketch of the English writer William Hazlitt (1785). These are the earliest references I can find to this song name of the bird which appears to have been early in use throughout New York and New England.

Among the current specific appelations of certain Sparrows some recent changes are noteworthy.

The "Yellow winged Sparrow" of Wilson is now the "Grasshopper Sparrow," the first allusion to its grasshopper-like notes being, as far as I can find, in Coues's 'Birds of the Northwest' (page 133). We owe the attractive name of "Vesper Sparrow" to John Burroughs (Wake Robin) which has superceded the older "Grass finch" of Pennant and Gmelin and the "Bay-winged Finch" of Wilson. The "Chipping Sparrow" is through Wilson from the earlier "little house sparrow or chipping bird" of Bartram. "Song Sparrow" unquestionably originated through Wilson, as also the specific title *melodia*. Catesby (I, 34) figures and describes "The Towhe-bird" (*Pipilo erythrophthalmus*). Wilson speaks of its name in Pennsylvania as "Chewink." "Towhee" is a later form of the word by adding an additional "e." "Swamp Robin" and (in Virginia) "Bulfinch" are other names mentioned by Wilson.

"Pipit" is an old English name applied to the Titlarks (*Anthus*) and is derived through "peep" from "pipe", imitative of the bird's note.

Catesby calls the Mockingbird (*Mimus polyglottos*) "The Mock Bird," though Bartram gives it its modern form. "Catbird" appears as such in Catesby (I, 66) and Bartram adds "Chicken bird" as a synonym (Travels, 290). "Chickadee" as a general

imitative vernacular name for the species of *Parus* I find first in Audubon. The name "Veery," given to the Tawny Thrush (*Turdus fuscescens*) in imitation of its note, is first used as a synonym by Nuttall.

"Warbler," as a general term for small song birds of the Old World family Sylviidæ, has come down from a word in several of the old European tongues (Old French, Old High German, Middle English — *Werbler, Werbelen*), meaning to whirl, run round, warble, as a bird (Skeat). In its special application to the species of *Sylvia*, which we owe to Pennant (1773), it included the American Warblers (Mniotiltidæ) which were later separated as a distinct family (Sylvicolidæ) under the title of "Wood Warblers." "Wood Warbler," however, has not prevailed and "Warbler" continues to be the current vernacular for the various species of this characteristic American family, though, as we are well aware, the name belies the insect-like notes, drawling monotones, lispings, and wheezing performances of the majority of the species. A few do really warble in the accepted sense of the term (*Geothlypis*), but most speak in a tongue peculiarly their own.

Kalm (Travels, Eng. Trans., II, 151) speaks of "Whip-poor-will" as the English name of *Antrostomus vociferus*. A confusion appears in Bartram (Travels, 292), who has it "Night hawk or Whip-poor-will." *Antrostomus carolinensis* is called by Bartram (292) "the great bat, or Chuck Wills Widow." "Night-hawk" is given by Wilson, though this species (*Chordeiles virginianus*) appears to have been described by Catesby under the name of "The Goat-sucker of Carolina" (I, 8).

Colinus virginianus has long proclaimed his proper title of "Bob-White," which has now become the accepted name of the species, superceding the older and less distinctive terms of "quail" and "partridge."

IV. Names Suggested by Some Peculiar Habit or Habitat.

"Flycatcher" is a name of obvious application given to an Old World group of birds. From the peculiar habits of certain American species the term "Tyrant Flycatchers" has become current. The "Kingbird" is first so-called by Bartram. Catesby figures the

species as "The Tyrant," whence the name of general application. Wilson speaks of its name in Maryland as the "Field Martin," and "Bee Martin" is another name in certain localities.

"Gnatcatcher" is a name that first appears in Audubon, from the Swainsonian genus *Culicivora*. The species (*Polioptila cærulea*) was originally "the little bluish grey wren" of Bartram (Travels, 291), and later the "Small Blue Grey Flycatcher" of Wilson (A. O., II, 164)."

Several species of Warblers early received names indicative of peculiar habits. The Worm-eating Warbler (*Helmitheros vermivorus*) of Wilson and later authors was originally "The Worm-eater" (Edwards, Gleanings), from Bartram; also Latham and Pennant from the same source. The Pine-creeping Warbler (*Dendroica vigorsi*) of Wilson was the "Pine Creeper" of Catesby (I, 61). Edwards (Gleanings, 92) quoting a letter from Bartram says of *Seiurus aurocapillus* that it "builds its nest upon the ground, and always chooses the south side of a hill; that it makes a hole in the leaves, like a little oven, and lines it with dry grass," etc. This is the first reference I have found of the familiar vernacular "Oven-bird," although Edwards calls the species "Golden-crowned Thrush." "Water Thrush" and "Wagtail" were names early given to the other species of the genus, and Pennant speaks of one as the "New York Warbler" (Arct. Zoöl., II, 308) whence its old specific name of *noveboracensis*. The vernacular "Myrtle Bird" first appears in Nuttall, hence probably "Myrtle Warbler" of authors, though early accounts speak of the bird's fondness for the berries of the Wax Myrtle (*Myrica*). Catesby calls it "The Yellow-rump" (I, 58) and Edwards (Glean., VI, pl. 298) "The Golden-crowned Flycatcher." The Magnolia Warbler was found by Wilson "among the magnolias, not far from fort Adams on the Mississippi." He called it the "Black and Yellow Warbler, *Sylvia Magnolia*" (A. O., III, 63), hence "Magnolia Warbler" of later authors. *Dendroica palmarum*, the "Palm Warbler" of Latham (Synop., II, 491), is the "Yellow red pole" of Edwards (*Parus aureus vertice rubro* of Bartram) and the "Yellow red-poll Warbler" of Wilson. Wilson called *Dendroica discolor* the "Prairie Warbler" from the open tracts of Kentucky where he first found it.

Of the Sparrows several species have received names indicative

of habitat. The "little field sparrow" of Bartram became the "Field Sparrow" of Wilson and later authors ("Bush Sparrow" of Burroughs). Wilson first bestowed the vernacular title of "Swamp Sparrow" upon *Melospiza georgiana*, though it was known to Bartram as "The reed sparrow." In like manner the name "Seaside Finch" was given by Wilson to *Ammodramus maritimus* from habitat (A. O., IV, 68). *Junco hyemalis* was called "Snow-bird" by the early settlers from the fact of its appearance in the late autumn and at the onset of winter in the coastal plain region (Catesby, Kalm, Wilson, and later authors). "Junco" is a comparatively late adoption in order to avoid confusion with the Snow Bunting — *Plectrophenax nivalis*).

The "House Wren" is so called by Bartram (Travels, 291) and the "Marsh Wren" likewise (the latter most likely referring to the long-billed species). Wilson, correcting earlier errors, gave the title "Winter Wren" to *T. hiemalis*.

"Chimney Swallow" is an old name for the "Chimney Swift" (*Chætura pelagica*) and is given as such by Kalm, Bartram and early writers.

"*T. melodes* — the wood thrush" is so called by Bartram (Travels, 290). Wilson named the "Hermit Thrush" (*T. solitaria*, A. O., V, 95) from its habitat and its retiring habits.

The Cowbird was "The Cow-pen Bird" of Catesby (I, 34) and likewise of Audubon, and the "Cow Bunting" of Wilson. "Meadow Lark" first appears in Wilson. Bartram calls it "The great meadow lark," and Catesby "The Large Lark" (I, 33). Pennant, nearer the truth, calls it the "Crescent Stare" (Arct. Zoöl., 192). Wilson also speaks of "Old field lark" as its common name in Virginia. The "Shore Lark" is so called by Pennant. Catesby calls it "The Lark" (I, 32), Bartram the "Skylark," and Wilson the "Horned Lark."

Several of our American Swallows received names indicative of habit or habitat — "Barn Swallow" originated as a specific title with Barton (*horreorum*, Fragments, 1799). It was the "House Swallow" of Bartram. The Bank Swallow is the "Bank Martin" of Bartram. "Cliff" and "Eave" Swallow are names of *Petrochelidon lunifrons* according to the particular nesting site adopted by this species. I have failed to find any early reference to the name

"Tree Swallow" for *T. bicolor* — the "White-bellied Swallow" of earlier authors. It appears to have come into use at a comparatively late period.

Bartram speaks of *Ampelis cedrorum* as "Crown Bird" or "Cedar bird" (Travels, 290), the latter its current name.

V. NAMES SUGGESTED BY COLOR OR OTHER EXTERNAL FEATURE.

A large number of our American bird names owe their origin to color or to some conspicuous external feature. The "Great crested Flycatcher" of Wilson is the "Great Crested Yellow bellied Flycatcher" of Bartram and "The Crested Flycatcher" of Catesby, (I, 52). The word "Great" evidently originated with Bartram. "Baltimore," as applied in the vernacular to *Icterus galbula*, was first used in ornithological literature by Catesby — "The Baltimore-Bird" (I, 48) — the name being derived from its color pattern, that of the livery of the Calverts (Lord Baltimore). Bartram calls it "Baltimore bird or hang nest." The specific appelation "Orchard" appears first to have been bestowed by Wilson upon *Icterus spurius* which was the "Bastard Baltimore" of Catesby (I, 49). Wilson goes to some length to set things right concerning this species. "Scarlet" as applied to the Tanager (*Piranga erythromelas*) appears first in Edwards (Gleanings, 343) as the "Scarlet Sparrow." Pennant calls this species "Canada Tanager." The "Summer Redbird" is so called and figured by Catesby (I, 56). Bartram speaks of it as the "Sandhill redbird of Carolina." Among the Sparrows and Grosbeaks there are a number of species the names of which have a color origin. "Red poll," given to a species of *Acanthis*, appears as the "Lesser red-headed Linnet" and "Lesser Redpole," of Ray and Pennant. "Linnet" is an ancient name common in several European languages and is in reference to the fondness of these birds for the seeds of the flax (*Linum*). Bartram undoubtedly refers to this species (*Acanthis linaria*) under the name of "hemp bird." "Purple" as applied to *Carpodacus purpureus* first appears in Catesby's work (I, 41) as "Purple Finch" and is a monumental witness of an inability to properly discriminate either between two very different shades of

color or in the use of the right word. "White-throated Sparrow" is so called by Edwards from a drawing of the species sent him by Bartram who speaks of it in his 'Travels' as "The large brown white throat sparrow." *Zonotrichia leucophrys* is the "White-crowned Bunting" of Pennant. The vernacular of *Passerella iliaca* has been contracted from the earlier "Fox-coloured" (or "colored") to simple "Fox Sparrow." Bartram calls it "The red, or fox coloured ground or hedge sparrow." Barton, in his 'Fragments,' speaks of this species' name in New York as "the Shepherd" (Fragments, 15). Our modern "Cardinal" is undoubtedly of French origin. Catesby gives it its English title of "Red-bird" and also "Le Cardinal" (I, 38). It is "The red-bird or Virginia Nightingale" of Bartram and other early writers. Catesby figures *Guiraca cærulea* as "The Blew Grosbeak" (I, 39). "Rose-breasted" (Wilson) may be traced to *Le Rose Gorge* of Buffon and "Red-breasted Grosbeak" of Pennant. *Passerina cyanea* is "The Blew Linnet" of Catesby (I, 45), who further alludes to it as the "Indigo-bird of Americans." The "Painted Finch" (*P. ciris*) is so called by Catesby, and Bartram likewise adds its other title of "Nonpariel." "Lazuli" was bestowed upon *P. amœna* by Say (Long's Exp., II, 47, 1823).

Pennant first uses the name "Black-throated Bunting" for *Spiza americana*, but Bartram mentions this species under the title "*Calandra pratensis*, the May bird" (Travels, 291). "Dickcissel," its modern name, appears to have originated through Mr. Robert Ridgway from Middle West localities (Coues, Birds of the North West, 166). Wilson borrowed the term "sharp-tailed" for *Ammodramus caudacutus* from Turton (Syst., 562). "Lark," as applied to two species of Fringillidæ — *Chondestes grammacus* and *Calamospiza melanocorys* — was bestowed upon these different birds, in the one case by Say and in the other by Townsend, in view of their lark-like appearance and habits.

Among the Warblers we have a host of color names. "Mourning Warbler" we owe to its discoverer Wilson. The Summer Warbler or "Yellow Warbler" (*Dendroica aestiva*) was "the Yellow Titmouse of Catesby (I, 63), "the summer Yellow-bird" of Bartram, the "Yellow-poll" of Latham and Pennant and the "Blue-eyed Yellow Warbler of Wilson. Say first described the

Orange-crowned Warbler (*Helminthophila celata*) (Long's Exp., 1823). *Mniotilta varia* was the "Black and White Creeper" of Edwards (Glean., Vol. VI, received from Bartram who gave it its name). In his 'Travels' Bartram calls it the "blue and white striped or pied creeper" (p. 289). Of the Prothonotary Warbler Pennant (Arct. Zoöl., II, 30) says: "Inhabits *Louisiana*. Called there *le Protonotaria*; but the reason has not reached us." Probably in allusion to the vestures of that office. Many species of warblers were earlier known by the various names of "flycatcher," "titmouse," and "creeper" according to their peculiar habits, the specific vernacular being mainly in relation to color. *Dendroica cœrulescens* was the "Blue Flycatcher" of Edwards (Glean., pl. 252 — received from Bartram); the "Black-throat" of Pennant (Arct. Zool., II, 285); the "Black-throated Warbler" of Latham, and the "Black-throated Blue Warbler" as first applied by Wilson. Wilson first named the "Caerulean Warbler." The "Black poll Warbler" appears as such in Latham and Pennant, "poll" or "pole" being an early name for "head" as in our "poll tax." The Yellow-throated Warbler" (*D. dominica*) was "The Yellow-throated Creeper" of Catesby (I, 61). The "Blue Winged Yellow Warbler" (*Helminthophila pinus*) was formerly confused with the "Pine creeper" of Catesby (*D. vigorsii*), hence *pinus* as applied to this species of *Helminthophila*. Its vernacular is a clear translation by Wilson of Bartram's "*Parus aureus alis ceruleis* — Blue winged yellow bird." In like manner *H. chrysoptera* was the "*Parus alis aureus*" of Bartram, the "Golden-winged Flycatcher" of Edwards (from Bartram), and the "Golden-winged Warbler" of Wilson and later authors. Wilson first bestowed the names "Bay-breasted" and "Chestnut-sided" upon *D. castanea* and *D. pensylvanica*. The former was Bartram's "little chocolate breast titmouse" (Travels, 292) and the latter his "golden crown flycatcher." This last species, also, was the "Red-throated Flycatcher" of Edwards and the "Bloody-side Warbler" of Turton as a result of Edwards's badly colored plate. *D. virens* was the "Green Black-throated Flycatcher" of Bartram and the "Black-throated Green Flycatcher" of Edwards (Glean., VI, pl. 300, from Bartram). The "Hooded Warbler" (*Sylvania mitrata*) is figured by Catesby under the name of "The Hooded Titmouse" (I, 60).

"Black-cap Titmouse" is Bartram's name for the species (*Parus atricapillus*) and probably also its near relative *P. carolinensis*. The "Olive-backed Thrush" was first so-called by Giraud (Birds of Long Island, 1844, 92). *T. fuscescens* was called "Tawny Thrush" by Wilson. "Bluebird" is an early name. The species is figured by Catesby (I, 47) as "The Blew-Bird." Pennant called it the "Blue-Backed Red-Breast" (Arct. Zool., II, 91). *Lanius ludovicianus* was called the "Logger head Shrike" or "Loggerhead" by Wilson, as its common name in the South.

Most of our species of Woodpeckers early received their names from color markings or other external feature, as "red-headed," "yellow-bellied," "golden-winged," "pileated," "downy," "hairy," "ivory-billed," etc. The word "Flicker," as a vernacular of *Colaptes auratus*, probably originated from the bird's call notes. It is referred to by Wilson.

VI. NAMES SUGGESTED BY LOCALITY (PLACE-NAMES) OR IN HONOR OF SOME PERSON.

A curious misapprehension as to the significance of the current English name of *Ammodramus sandwichensis savanna* seems to exist in ornithological literature as revealed by its orthography. Wilson distinctly refers to the city of Savannah as the locality where he states he first discovered the species (A. O., III, 55) and he so spells its name in the English title. Its specific name, however, he gives as "savanna." In our current literature this last appears as the method of spelling the bird's name in English, which is clearly misleading. In its general application "savanna" might be very appropriate in view of the species' habitat, but Wilson intended it otherwise and "Savannah Sparrow" is the proper form of the English name.

The term "Evening" in the vernacular of *Hesperiphona vespertina* as given to the species by Cooper (Annals N. Y. Lyceum Nat. Hist., I, 220) conveys, as does the scientific name, the idea of the west or the place of sunset.

Geothlypis trichas was called by Bartram "The olive coloured yellowthroated wren" (Travels, 292). Of the bird's present English name I find the following interesting reference in Edward's

Gleanings (Vol. V, 57): "J. Petiver, in his Gazophylacium, plate vi, has given the figure of a bird, which I believe to be the same with this; for which reason I continue the name he has given it....'*Avis Marylandica gutture luteo*, the Maryland Yellow-throat. This the Rev. Mr. H. Jones sent me from Maryland'." Edwards later received the bird from Bartram with a drawing "very neatly and exactly done, by Mr. William Bartram, of Pensylvania, who hath enabled me to give a further account of this bird, for he says, it frequents thickets and low bushes by runs (of water, I suppose, he means) and low grounds; it leaves Pensylvania at the approach of winter, and is supposed to go to a warmer climate."

To Wilson we owe the place-names of five of our species of Warblers — the Kentucky, Connecticut, Tennessee, Nashville, and Cape May — from the State or locality of the first capture by him of the species in question. John Cassin named a species of Vireo "Philadelphia" after the city in the neighborhood of which he obtained his type specimen.

Thryothorus ludovicianus obtained its vernacular through Bartram — "(regulus magnus) the great wren of Carolina" (Travels, 291). This Wilson transposed into "Great Carolina Wren."

The "Blackburnian Warbler" is so called by Pennant and Latham, and is evidently named in honor of the owner of the Blackburn Museum in London.

A number of our birds acquired their names in the first half of the last century in honor of certain persons known to their describers — as Lincoln's, Henslow's, LeConte's, and Harris's Sparrows; Townsend's, Audubon's, Swainson's, and Bachman's Warblers; Lewis's Woodpecker; Clark's Nutcracker; Steller's and Woodhouses's Jays, and many others of early and recent date.

"Louisiana" as applied to the species of Tanager (*Piranga ludoviciana*) and to the Water-Thrush (*Seiurus motacilla*) refers to the region embraced in the Louisiana Purchase, not to the present State of that name. "Florida," "Canada," "California," "Hudsonian" and other regional names have in like manner been applied to certain species, as "Florida Jay," "Canada Jay," "Canadian Warbler," "California Woodpecker," "Hudsonian Chickadee," and so forth.

The matter as presented in the foregoing sketch does not pretend to list all of the species and varieties of North American land birds. It is only a sketch or outline of a most attractive subject and was written partly for the purpose of gathering together what knowledge we have of the history and origin of our more familiar bird names.

SUMMER BIRDS OF IRON COUNTY, MICHIGAN.

BY ELIOT BLACKWELDER.

THE birds in the following list were seen in Iron County, Michigan, and adjacent portions of Dickinson and Menominee Counties during June, July and August, 1908. The writer was engaged in geological surveying, in the course of which he spent nearly three months in the woods and traversed the region somewhat thoroughly in different directions. The notes on birds were kept in the form of a daily record, or a "roll-call," as we often referred to it in the field.

The region is one of low hills and plains of glacial drift, through which small rocky knobs protrude here and there. The entire district was once heavily forested, but the coniferous woods have been largely cut off and the remaining "slash" has been repeatedly burned. Where fires have not been excessively damaging, the original forest is being replaced by thickets of birch and poplar with dense undergrowth of blackberry bushes and other shrubs. The clay ridges, such as the glacial moraines and drumlins, were clad with dense forests of hard maple, birch and hemlock. Only a small portion of this hardwood forest has been lumbered, although the rate of cutting is constantly increasing. Where the forests are untouched they are generally open below,— the large trees, with their dense shade, preventing the growth of underbrush. Where the timber has been removed, however, the second growth is hazel and maple brush with dense berry bushes. The pine forests were largely on the sand plains, and those localities have

generally been burned so often that even the sod and herbage has been killed, leaving a relatively barren waste, with a few charred stubs rising above it. Scattered throughout the area there are many swamps, bristling with cedar and tamarack, only small portions of which have as yet been cut by the lumbermen. Many scattered lakes connected by crooked streams, complete the list of topographic features. Around settlements there are, of course, cleared farms and orchards, but these cover only a small part of the district.

The bird population may be readily classified into several societies, which are relatively distinct from one another. It would be possible to refine this classification considerably, but the data gathered last summer hardly make this advisable.

In the open hardwood forests birds are not abundant. The characteristic species there are the Red-eyed Vireo, the Wood Pewee, the Hermit and other Thrushes, the Rose-breasted Grosbeak, an occasional Scarlet Tanager, and several warblers of the genus *Dendroica*. While walking through these open park-like woods, one is seldom out of hearing of the peaceful notes of the Vireo and Pewee.

It is doubtful if any considerable area of the original pine forest remains in the district. At least our zigzag travels did not happen to lead us into any such. What its bird fauna may have been can not therefore be stated here. In the tangles of brush and charred stumps that mark the trail of the lumbermen through either the hard wood or the coniferous forests, birds are generally abundant. The most characteristic denizen of these wastes is the White-throated Sparrow, whose plaintive note is well known to everyone who has had experience in the northern woods. In the brushy tangles, the Towhee, the Junco, and the Winter Wren are characteristic birds. Where some of the original trees are left, the Flicker, the Robin, and the Ruffed Grouse are commonly met with. The Pileated Woodpecker, doubtless originally an inhabitant of the great pine forests, may now be found occasionally in those parts of the lumbered area where fires have not been too destructive. The Northern Raven is another not uncommon member of this society.

The dense cedar and tamarack swamps are generally silent places and seem to have but few bird inhabitants. Only the Chick-

adee and Kinglets are characteristic, although the Canada Nuthatch is occasionally found in the same somber thickets.

Along the lakes and rivers a very different but tolerably numerous bird population makes its home. Perhaps the most common of all the river birds is the Kingfisher, for although they are almost always found singly or in pairs, scarcely any stretch of river or lake shore is without them. An occasional Blue Heron may be seen stalking along the banks of the more sluggish streams and lakes; and wherever there are sandbars or beaches the Spotted Sandpiper is often encountered. The Osprey was observed on one or two occasions and may be more common than is apparent from our record. On the lakes and ponds the Loon is by all means the most characteristic bird, though there are never many in one locality. Along swampy borders the Bittern and doubtless other marsh birds are characteristic. The Horned Grebe is another member of the lake fauna but seems not to be common in summer. Several species of ducks were observed but the only one positively identified, the Red-breasted Merganser, frequents chiefly the rivers. In summer, pairs of old birds with broods of half-grown young may often be chased for long distances on swift streams from which the fledglings find it impossible to escape by flying.

In the cleared areas and farms, and around the towns, birds are more common than elsewhere, but they are probably less typical of this particular region. In a sense they must be considered as invaders from regions less densely forested than this district was originally. In the cities there is the inevitable House Sparrow, and in his vicinity but few other birds care to remain. Around the farms the Barn Swallow, the Purple Martin, the Cowbird, the Song and Field Sparrows, and the Phœbe, are familiar birds. The Indigo Bunting finds its most congenial home along road-sides through the woods; and the Crow, although it prefers the woods, does not seem to go far from the settled districts. On the open fields the Horned Lark is among the recent immigrants, and the Meadowlark is not uncommon, although not the characteristic bird it is farther south. Here also the Sparrow Hawk and Buteos may be found occasionally.

Annotated List.

1. **Colymbus auritus**. HORNED GREBE.— A single pair of grebes was seen early in August on the upper course of the Menominee River.

2. **Urinator immer**. LOON.— One of the characteristic birds of the many lakes. On the small bodies of water only single pairs were seen and they are rarely numerous at any one place.

3. **Mergus serrator**. RED-BREASTED MERGANSER.— Birds with broods of young were frequently encountered along the large streams such as the Michigamme and Menominee Rivers.

4. **Botaurus lentiginosus**. AMERICAN BITTERN.— Doubtless a common resident of the open cat-tail marshes which border many of the lakes. The birds are not often seen, however, unless their special haunts are invaded.

5. **Ardea herodias**. GREAT BLUE HERON.— Single birds are seen not infrequently, especially along the larger rivers.

6. **Actitis macularia**. SPOTTED SANDPIPER.— This sandpiper is the only common representative of the shore birds and it is confined to those stretches of river banks and lake shores where there are sand bars or mud banks. Since these conditions are not often fulfilled in this part of northern Michigan, the bird is not particularly common.

7. **Oxyechus vociferus**. KILLDEER.— The Killdeer was seen occasionally in low pastures in the better settled farming districts. Elsewhere there is but little suitable territory for it.

8. **Bonasa umbellus**. RUFFED GROUSE.— A common denizen of portions of the hard wood forests which are well provided with undergrowth and are sufficiently remote from towns.

9. **Accipiter velox**. SHARP-SHINNED HAWK.— A few of these small hawks were seen in August and September in the more open country, in the vicinity of towns and villages.

10. **Buteo borealis**. RED-TAILED HAWK.— A common species in the open country. Not a few of them frequent the plains once forested with pines, but now transformed by repeated fires into barren wastes.

11. **Buteo platypterus**. BROAD-WINGED HAWK.— Two of these hawks were seen at sufficiently close range to be recognized; one on the Menominee River in August, and another on the upper course of Iron River in September.

12. **Falco sparverius**. AMERICAN SPARROW HAWK.— Sparrow Hawks are fairly common on the burnt-over plains and in the neighborhood of farms.

13. **Pandion haliaëtus carolinensis**. AMERICAN OSPREY.— A few Ospreys nest along the larger rivers where they are wooded and not bordered by settlements. Several were seen on the lower Michigamme River.

14. **Strix varia**. BARRED OWL.— Large owls, believed from their note to belong to this species, were heard repeatedly in the dense hardwood forests in southeastern Iron County in July.

15. **Ceryle alcyon**. BELTED KINGFISHER.— The Kingfisher is one of the characteristic birds of the river banks, but is somewhat less numerous about the lakes.

16. **Dryobates villosus**. HAIRY WOODPECKER.— Not very common. It was clearly recognized on two occasions in more open portions of the hardwood forests.

17. **Dryobates pubescens**. DOWNY WOODPECKER.— The commonest of the woodpeckers in summer. It is generally found in more open parts of the maple and birch woods.

18. **Sphyrapicus varius**. YELLOW-BELLIED SAPSUCKER.— A few were seen in the hardwood forests in July and early in September.

19. **Ceophlœus pileatus**. PILEATED WOODPECKER.— This largest of the woodpeckers of the northern States is still fairly common in the deeper recesses of the woods away from towns. It seems to prefer the edges of the balsam and cedar swamps when surrounded with forests of hardwood and hemlocks. The bird itself may be recognized by its large size and its sweeping undulating flight. It is more often heard than seen, for its rappings on tall dead stubs are easily audible at a distance of nearly a mile, if not more.

20. **Melanerpes erythrocephalus**. RED-HEADED WOODPECKER.— This woodpecker is less common than in the settled region farther south. We found it generally in the open burned-over areas where scattered dead stumps are numerous.

21. **Colaptes auratus luteus**. FLICKER.— The Flicker is one of the characteristic birds of the partly cleared lands and around the settlements.

22. **Antrostomus vociferus**. WHIP-POOR-WILL.— Heard several times in August and July in the thick hard-wood forests along the Michigamme River.

23. **Chordeiles virginianus**. NIGHTHAWK.— Nighthawks are abundant in midsummer throughout the district. Large numbers of them may be seen scattered overhead in the afternoon and early evening. It is at this time that their peculiar bellowing note may be heard as they dive hundreds of feet from the heights they have reached in soaring.

24. **Chætura pelagica**. CHIMNEY SWIFT.— Fairly common throughout the district but especially in the settled portions.

25. **Archilochus colubris**. RUBY-THROATED HUMMINGBIRD.— A few Hummingbirds were observed near farms and in open glades in the hardwood forest where there were attractive flowers.

26. **Tyrannus tyrannus**. KINGBIRD.— Common only in the cleared and settled portions of the district.

27. **Sayornis phœbe**. PHŒBE.— This is a bird preëminently of the farms and road-sides, rather than of the deep forest.

28. **Myiochanes virens**. WOOD PEWEE.— One of the most characteristic birds of the deep hardwood forest, especially where the trees are large and high, and the forest is free from undergrowth.

29. **Empidonax minimus**. LEAST FLYCATCHER.— Apparently not common here in summer. We saw one in the hardwood forest in August.

30. **Otocoris alpestris praticola**. PRAIRIE HORNED LARK.— Evidently an immigrant from the prairie country to the south. A few were seen on the barren burned plains but favorable localities are still few, and must have been quite lacking a generation ago.

31. **Cyanocitta cristata**. BLUE JAY.— A fairly abundant bird, particularly in the hardwood forest and around settlements.

32. **Perisoreus canadensis**. CANADA JAY.— Rare in summer. A few were seen early in September in the second-growth scrub pines, in the northwestern part of Iron County.

33. **Corvus corax principalis**. NORTHERN RAVEN.— The Raven, like the Pileated Woodpecker, is a bird of the deep recesses of the forest. It seems to be confined to no particular situation and is not common anywhere, although single pairs are seen at frequent intervals.

34. **Corvus brachyrhynchos**. AMERICAN CROW.— The Crow is much less common here than farther south. It seems to prefer the cleared portions of the district around the edges of the forest.

35. **Molothrus ater**. COWBIRD.— A common bird around the farms and pastures, but not elsewhere.

36. **Agelaius phœniceus**. RED-WINGED BLACKBIRD.— Characteristic of the cat-tail marshes bordering the lakes.

37. **Sturnella magna**. MEADOWLARK.— Like the Horned Lark and several other species, this is apparently a recent immigrant. We saw but few and those only in the cultivated parts of the district.

38. **Scolecophagus carolinus**. RUSTY BLACKBIRD.— A few seen, chiefly along road-sides in the vicinity of farms.

39. **Quiscalus quiscula æneus**. BRONZED GRACKLE.— Not particularly common. We saw a few in the wooded plains northeast of Crystal Falls in August.

40. **Carpodacus purpureus**. PURPLE FINCH.— A single small flock was seen in July in the hemlock woods on the western edge of Dickinson County.

41. **Astragalinus tristis**. AMERICAN GOLDFINCH.— Common almost everywhere, especially in the cleared portions.

42. **Spinus pinus**. PINE SISKIN.— The Siskins may be seen in small bands in the latter part of the summer, and are especially characteristic of cedar swamps.

43. **Passer domesticus**. ENGLISH SPARROW, OR HOUSE SPARROW.— As everywhere, the House Sparrow is confined to the towns and villages, but has made its way all over the district wherever conditions are suitable.

44. **Pocœcetes gramineus**. VESPER SPARROW.— Found throughout the district along road-sides and in clearings.

45. **Zonotrichia albicollis**. WHITE-THROATED SPARROW.— Probably the most characteristic single species of the region. The plaintive whistle of the "Peabody" Bird is heard everywhere except in the deepest solitudes of the woods and swamps. Often a belated singer may be heard long after dark, when other sounds are still.

46. **Spizella passerina**. CHIPPING SPARROW.— Seen on several occasions in the brushy clearings.

47. **Spizella pusilla**. FIELD SPARROW.— Common only in the more settled regions where there are open fields and hedges.

48. **Junco hyemalis**. SLATE-COLORED JUNCO.— A characteristic bird of the brushy clearings and isolated farms.

49. **Melospiza melodia**. SONG SPARROW.— Scattered throughout the district, but commonest along roads through partly cleared hardwood.

50. **Pipilo erythrophthalmus**. TOWHEE.— The Towhee finds a suitable habitation in the abundant brushy clearings throughout the region.

51. **Zamelodia ludoviciana**. ROSE-BREASTED GROSBEAK.— This is confined to the open birch and maple forest, and there it is one of the characteristic birds.

52. **Passerina cyanea**. INDIGO BUNTING.— Tolerably common along the brushy road-sides through hardwood forests and along the edges of the settled districts.

53. **Piranga erythromelas**. SCARLET TANAGER.— The Tanager is found with the Grosbeak in the lofty hardwood forests, but is considerably less common.

54. **Progne subis**. PURPLE MARTIN.— Common in the smaller towns, but not often seen elsewhere.

55. **Hirundo erythrogastra**. BARN SWALLOW.— Characteristic of the cultivated regions where there are farms and bridges.

56. **Riparia riparia**. BANK SWALLOW.— The Bank Swallow is found wherever there are suitable clay banks. These are not particularly numerous, however, except along some of the larger rivers.

57. **Bombycilla cedrorum**. CEDAR WAXWING.— Small companies of Waxwings are often seen or heard in the forests, where they seem to be confined to no particular situation.

58. **Vireosylva olivaceus**. RED-EYED VIREO.— There is no sound more familiar in the generally silent recesses of the hardwood forest than the quiet warble of this vireo.

59. **Mniotilta varia**. BLACK AND WHITE WARBLER.— In midsummer a few were seen in the hemlock and maple forests.

60. **Dendroica æstiva**. YELLOW WARBLER.— Common among the willows and other undergrowth along the river banks.

61. **Dendroica striata**. BLACK-POLL WARBLER.—

62. **Dendroica virens**. BLACK-THROATED GREEN WARBLER.— Both of these warblers were seen in July among the hemlocks and maple woods. Doubtless there are more species but they were difficult to see clearly through the leaves.

63. **Seiurus aurocapillus**. OVEN-BIRD.— An abundant bird in the damp portions of the hardwood forests. Its loud crescendo whistle is one of the characteristic sounds in such places.

64. **Seiurus noveboracensis**. WATER-THRUSH.— Fairly common among the willows and shrubs along the river banks.

65. **Geothlypis trichas**. MARYLAND YELLOW-THROAT.— Frequents especially the edges of lakes where there is undergrowth with willows.

66. **Wilsonia canadensis**. CANADIAN WARBLER.— Seen only late in August and therefore perhaps not a summer resident.

67. **Setophaga ruticilla**. AMERICAN REDSTART.— Like the Dendroicas, the Redstart is not uncommon in the hardwood forest.

68. **Dumetella carolinensis**. CATBIRD.— Decidedly uncommon, considering the inviting character of the brush heaps and undergrowth which are scattered throughout the district. Not more than a dozen were seen during the entire summer.

69. **Toxostoma rufum**. BROWN THRASHER.— Rather more common than the last, but still not abundant.

70. **Troglodytes aëdon**. HOUSE WREN.— A single wren of this species was seen in recent clearings in the hardwood forest in August.

71. **Nannus hyemalis**. WINTER WREN.— The Winter Wren seems to be the common member of the family in this region, and is frequently seen dodging in and out among brush heaps and wood piles.

72. **Sitta canadensis**. RED-BREASTED NUTHATCH.— Fairly common, especially among the balsams and hemlocks on the borders of swamps. Its relative, the Carolina Nuthatch, was not seen.

73. **Penthestes atricapillus**. CHICKADEE.— Hardly a day can be spent in the woods without seeing a few Chickadees. They seem to prefer the edges of the cedar swamps but are not uncommon in the hardwood forest as well.

74. **Regulus satrapa**. GOLDEN-CROWNED KINGLET.—

75. **Regulus calendula**. RUBY-CROWNED KINGLET.— Occasionally seen in the midst of the cedar swamps. The Ruby-crowned Kinglet is the more common of the two. In July its delicate and ecstatic little song may be heard if one is fortunate enough to be close by and not too disturbing.

76. **Polioptila cærulea**. BLUE-GRAY GNATCATCHER.— A few seen with the kinglets in July.

77. **Hylocichla mustelina**. WOOD THRUSH.—

78. **Hylocichla fuscescens**. WILSON'S THRUSH.—

79. **Hylocichla ustulata**. OLIVE-BACKED THRUSH.—

80. **Hylocichla guttata pallasi**. HERMIT THRUSH.— The thrushes are all denizens of the hardwood forests, especially where undergrowth is not thick. They seem to be rather more common in the damper portions than on higher ground. Of the four, the Hermit Thrush is perhaps the most common, and its beautiful song is one of the familiar sounds of the deep woods and is heard especially toward evening.

81. **Planesticus migratorius**. ROBIN.— Common not only along roads and about the farms, but in the more open portions of the woods far from settlements.

82. **Sialia sialis**. BLUEBIRD.— Less common than the last, with which it is often associated. We found it chiefly in open burned areas in the forest where it seems to find nesting sites in holes in the charred stumps.

YELLOW-HEADED BLACKBIRD STUDIES.
Male in 'straddle-pose' on the top of the old, dry reed stems.

A STUDY OF A BREEDING COLONY OF YELLOW-HEADED BLACKBIRDS; INCLUDING AN ACCOUNT OF THE DESTRUCTION OF THE ENTIRE PROGENY OF THE COLONY BY SOME UNKNOWN NATURAL AGENCY.[1]

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Plates V–XVI.

IN an effort to secure exact and detailed information in regard to the nidification of the Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*), a nesting colony of these birds was subjected by the writer and an assistant to a continuous daily inspection for a period of thirty-two days, from May 13 to June 13 inclusive, 1901. The locality selected was a clump of quill-reeds (*Phragmites phragmites*) about an acre in extent, isolated by open marsh from a more extensive growth of reeds bordering a large slough which forms part of the preserve of the Long Meadow Gun Club, lying in the bottom-land of the Minnesota River and distant ten miles from the city of Minneapolis, Minnesota. It was on the opposite side of the slough from the buildings of the Gun Club, accessible only by boat and in no way subject to intrusion by domesticated animals of any sort. Observations were begun on May 13, and from that date until June 13 the entire site was carefully examined once, and often twice, a day, with the exception of three days — May 16 and 28 and June 6 — when severe wind and rain storms made it impossible to reach the locality.[2] Each nest as it was found was marked by an inconspicuous numbered tag attached to the reeds

[1] Read in part before the American Ornithologist's Union in Cambridge, Mass., Nov. 18, 1908.

[2] A large part of the data forming the basis of this paper was secured through the patient and careful coöperation of Miss Mabel Densmore of Red Wing, Minn., who was quartered at the Gun Club and made the daily rounds of the Colony in the absence of the writer.

near by and as much out of sight as possible. A note book was kept and the notes entered daily on the spot under each nest number. The water throughout the clump of reeds varied in depth from six to eighteen inches. It was thus necessary to wade in making the rounds of the nests, but it was possible to get about without disturbing the vegetation greatly, or making any considerable noise, so that the birds soon became accustomed to the daily visitations and, for the most part, seemed little annoyed by the intrusions.

The spring of 1901 was somewhat backward, the weather having been rough and cold. Meadowlarks, Red-winged Blackbirds and Vesper Sparrows had arrived by the latter part of April. The first Lark Finches came May 1, just as the last of the early blossoming Nuttall's Pasque-flower (*Pulsatilla hirsutissima*) were fading on the prairie knolls, and the first of the marsh marigolds (*Caltha palustris*) were coming into bloom in the marshes below. On May 3 the first Yellow-headed Blackbirds were seen, all males except one. The edges of the sloughs were then just beginning to show green with the sprouting grass and willows. The Baltimore Oriole and the Rose-breasted Grosbeak came May 4, and the first Warbling Vireo was heard on the 5th. May 12 it was still cold — so cold that winter clothing out-of-doors and fires indoors were necessary for comfort. A 'white frost' was to be seen that morning and thin ice was said to have formed, but vegetation did not suffer to any appreciable extent. Many birds had arrived but there had been no distinct bird 'wave' as usual, the cold weather having interfered with the regular order of migration. Most of the trees were in small leaf. Willows were in full bloom, many staminate catkins having scattered. Sweet-flag and iris were just coming up. The water of the marsh was full of tadpoles. Many Mud-hens and Florida Gallinules had arrived and were to be seen feeding like chickens out in the bare slough. All day long on this date a large flock of Yellow-heads, made up entirely of males, fed, first among the rice stubble near shore, and, later (in the afternoon), in the pasture in front of the house. They seemed to find food among the broken rice stalks and the short grass, just what could not be determined by watching them. As the males sat about in the grass it was difficult at times to distinguish their saffron heads from the dandelion blossoms which grew abundantly where they were feeding. Late in the afternoon of the 13th the writer paddled

YELLOW-HEADED BLACKBIRD STUDIES.

Upper figure, general view of the quill-reed 'clump' in early June. Male Yellow heads standing guard on the tops of the old dead reeds.

Lower figure, showing the Wild Rice six or eight inches high, and the old broken down stubble. Quill reeds (*Phragmites*) on the right.

across the slough and there in the quill-reeds found many Yellow-headed Blackbirds, and to his surprise discovered that the females were also present in full force and busily engaged in building nests. Some two dozen nests were found about a little pond separated a little way from the main slough. They were in all stages of construction, two or three being completed and nearly dry. A suitable territory for making the observations contained in this paper was selected and outlined so that as little confusion as possible would result in keeping tab on the nests. An area of quill-reeds, then almost free from nests, was chosen.

When, therefore, the work began on the afternoon of May 13, marsh vegetation was only just starting and very little new growth had sprung up among the old, dry, last year's reed stalks — only a green shoot here and there. Out in the slough the wild rice had not yet appeared above the surface of the water, the last year's dead stubble alone being visible. The first nests of the Yellow-heads are thus, of necessity, hung among the old reed stalks, only the later ones including new growth, but even in the latter the rigid last year's stems always form the chief support. Throughout Minnesota these quill-reed swamps or 'cane-brakes,' as they are often locally called, form the almost exclusive nesting sites of the Yellow-headed Blackbird. So true is this that the distribution of this bird, in the nesting season, is largely determined by the presence of this plant. In times of high water in May and June the Yellow-heads may be driven to nest elsewhere, selecting then various unusual sites. Under such conditions nests may be found built among bulrushes (*Scirpus*), and occasionally the birds are forced to build in the willows bordering the sloughs, after the manner of the Grackles and Red-wings. It is sometimes stated [1] in accounts of the nesting of this bird that it places its nest among wild rice (*Zizania aquâtica*) but this is rendered impossible by the fact that the old rice stalks are weak and fall into the water in the autumn, leaving only a low broken stubble; while the new growth is usually only eight or ten inches high when the nesting season of the Yellow-head is over.[2] It is true, however, that in rare instances

[1] J. W. Preston, Oölogist, Vol. I, July, 1884, p. 36. Bendire, Life Hist. N. Amer. Birds, 1895, p. 448 (quoting B. T. Gault).

[2] Attention was called to this matter and a full explanation given by Ludwig Kumlien of Milton College, Wis., in 'The Osprey,' Vol. I, May, 1897, p. 117.

stray nests are built among the low rice stubble, this bringing the bottom of the nest almost to the water-level, a precarious position, since a very little rise in the water in the slough would submerge such nests.

The first day that the reed-clump selected was examined only three nests were found, one about completed and two just begun. During the next two days — May 14 and 15 — twenty-eight (28) nests were tagged. Nest-building was then at its height and for some days thereafter intense activity was displayed. New nests were started almost daily until the end of May and one as late as June 2. These later nests were probably, as will appear further on, the work of unskillful birds that had failed in their earlier attempts. In all, sixty-two (62) nests, counting unfinished attempts as well as completed nests, were discovered, tagged, and subjected to daily scrutiny in this one clump of reeds. Leaving the recital of the detailed notes made during the thirty-two days to form an addendum to this paper, a general summary of the findings may here be presented as being of chief interest to the general reader. For a clear understanding of how some of the observations were obtained it should be stated that many hours were spent at various times throughout the month in quietly watching, glass in hand, the workings of the colony from a convenient distance.

It was never possible to tell just how many pairs of Yellow-heads composed this colony; but probably thirty pairs is not far from the correct number.

The females did all the work connected with the nest building, the males taking no part whatever.

The females incubated the eggs without any assistance from the males, except that occasionally the males brought food to their sitting mates.

While the nests were being built and the eggs incubated the males remained about the locality part of the time, perching on the reed tops and occasionally showing some interest and concern, especially if a hawk, bittern or other large bird appeared; but they were more often absent roving about the neighboring upland in little parties, foraging for food and amusing themselves. All the birds, females as well as males, seemed to leave the nesting place to feed and could be seen departing or returning in little straggling bands, this being especially noticeable morning and evening.

The males assisted the females to a rather limited extent in feeding the young. Observations in regard to the young were unfortunately rather curtailed in this study for reasons that will appear later. At other times the male bird has occasionally been seen feeding the young both in the nest and after they had left the nest and were perched about among the reed tops. Grasshoppers, various insects and a large black larva of some sort which the birds obtained from among the decayed vegetation in the shallow water along the edges of the slough formed the chief food supply. These larvæ were ugly and formidable objects and were thrust down the throats of the young birds with considerable difficulty. On one occasion a female was seen carrying a large flat object, squirming and curling about her bill, which was evidently a leech.

The nests were placed from two to three feet above the water. The body of the nest was invariably constructed of water soaked dead grass blades picked out of the water of the marsh. This sort of material being soft and pliable was easily woven and wound around the reed stems to the smooth surface of which it closely adhered; and when the structure, which was at first very wet, soggy and dark colored dried in the sun and wind, it contracted and drew the included reed stems nearer together thus forming a compact, firm, and securely attached basket-like nest. The lining consisted of pieces of broad, dry, reed leaves and the rim of the nest was well finished off with the fine branches of the plume-like fruiting tops of the reeds. Occasionally the lining was not placed for a day or two until the nest had dried somewhat, but usually the coarse lining was added, in part at least, to the bottom and around the walls while the body of the nest was still in course of construction and soft and wet. The finishing touches to the nest consisted in adding the fine material about the upper walls and rim which, in the more perfect nests, partially closed and formed a sort of canopy over the entrance. The details in the construction of the nest and the considerable variation in the finish and size of different nests are better shown in the accompanying illustrations than can be presented by written description.

Of the sixty-two nests, twenty-eight were abandoned before completion, being deserted in all stages of construction from the first few strands to almost finished nests. Careful examination

revealed the fact that in almost all, if not all cases, this was due to faulty workmanship or poor judgment in selecting a site. Either the material was not wet enough, making it impossible to handle it satisfactorily and not affording sufficient shrinkage, or it was not well placed, or the reeds forming the support were improperly situated so that as the nest dried it became distorted and unfit for use. In one instance, it was positively determined that the same bird built four imperfect nests before being able to construct one that was habitable. She was closely watched for hours and as she had chosen an open place in the edge of the clump it was easy to observe her movements. After nearly completing one of the faulty nests, this bird seemed suddenly to become aware that it was a failure and in the savage manner in which she tore out the inside and pulled to pieces the rim, displayed a degree of irritability and temper that would have done justice to the average human artisan under similar circumstances. To make matters worse, she began at once the erection of another domicile some fifteen feet away, using the nearly dry material pulled from the despoiled nest. This, of course, she found impossible and although she tried later to carry on the work with wet material this nest, also, was a failure.

A skillful, industrious bird would build one of these large beautifully woven and lined nests, all complete, in from two to four days. Of twenty well built nests, nine were finished in two days, nine in three days and two in four days. It never ceased to be a source of astonishment how these bulky, well made structures could spring up almost over night when it was considered that a single bird had not only to collect but skillfully manipulate all this large mass of material.

Thirty-six of the sixty-two nests begun were completed and received eggs. In only twenty-six of the thirty-six was the whole clutch laid. From one to five days was allowed to elapse after the completion of the nest before egg-laying began. The eggs were invariably deposited one each day. Of the twenty-six completed sets, there were two sets of three each, twenty-two sets of four each, and two sets of five each.[1] In one instance, a Cowbird's egg was

[1] The writer in a large experience has never found a set of six eggs, although this number is sometimes given by authors. No detailed description of the eggs is given here, as that formed no part of the present study.

deposited in a nest in which the Yellow-head had three eggs and the latter laid no more eggs but incubated these four.

All the eggs of a set are colored alike but there is considerable variation in different sets. Occasionally the appearance in a nest of an egg differently marked from those already there, suggested the possibility of a female now and then laying an egg in a neighbor's nest.

In seventeen nests the period of incubation was completed; the eggs in nine nests in which the full complement was laid being destroyed before hatching. In these seventeen nests the period of incubation, inclusive of the day on which the last egg was laid, to the day on which the first egg hatched, was nine days in one instance, ten days in twelve, eleven days in three, and twelve days in one. Thus ten days may be considered the usual period of incubation. The nine day period was in the case of the only set of five eggs that hatched.

In the seventeen nests in which incubation was completed all the eggs hatched on the same day in only three nests; in three nests one egg hatched each day; in two nests two eggs hatched the first day and one egg each day thereafter; in four nests the eggs hatched irregularly during three days; in two nests the four eggs in each hatched during two days; in the set of five eggs one egg hatched each day for three days, the remaining two on the fourth day. In one instance it was two days after the first egg hatched before the second hatched, this in a nest containing three eggs, one of which was infertile. In each of three nests there was one infertile egg. This irregularity in the time of hatching of the eggs is perhaps due to individual variation in the time of beginning incubation, or faithfulness to the duties of incubation on the part of different birds.

A brief résumé of the foregoing exhibits the following facts in regard to the nidification of the Yellow-headed Blackbird:

The nesting period in southern Minnesota is from the middle of May to the latter part of June.

The female builds the nest and incubates the eggs without any assistance from the male.

The male assists in the care of the young, but only to a limited extent.

The body of the nest is constructed of wet material, the drying and contracting of which fixes it securely in position.

Among a number of birds there is a remarkable variation displayed in the nest-building ability, some individuals showing such defective instinct in the selection of nesting sites and such a lack of skill in workmanship that they are almost unable to construct serviceable nests.

The usual full complement of eggs is four, sometimes three or five.

The usual period of incubation is ten days.

The eggs of a set rarely all hatch at the same time, usually a period of two to four days being consumed.

The study of this colony of Yellow-headed Blackbirds met with early interference and later was prematurely terminated by an annoying and unexpected series of events, a brief account of which may be of some interest. Very early in the work it became evident that eggs were disappearing from the nests and between this time and the termination of the inspection June 13 every nest in the colony, except one, was emptied of its contents — eggs and newly hatched young — by some marauder or marauders, the identity of which could not be determined. The one unrifled nest contained, June 13, four nestlings several days old and one infertile egg. Assuming that these were also destroyed, which is almost a certainty, there was not a single young bird reared by this colony of Yellow-heads and all the season's effort went for naught. In all, seventy-seven eggs and fifty-three young birds were taken. Nineteen of the thirty-six nests in which eggs were laid were emptied of their contents before the full quota of eggs had been deposited. Sometimes the eggs and young disappeared one or two at a time, more commonly the nest was completely emptied between one visit and the next. Usually the nests were not soiled or disarranged in any way. In a few instances there were pieces of egg shells clinging to the reeds or lying in the water below the nests, and once or twice blood stains on the inside or rim of the nest. In one nest there remained two tiny feet and some pieces of flesh, and in another nest four feet, showing that in these instances at least the young birds were dismembered and devoured piecemeal. Once the dead body of a nestling that had fallen from the nest and been drowned in the water below, disappeared during the same night that its fellows in the nest above were disposed of.

Watch and examine as closely as we could we were unable to

determine what animal or animals it was that devoured these eggs and birds. Presumably some small carnivorous mammal that mounted the reed stalks from the water below, too nimble footed and light bodied to leave any traces of its presence beyond the despoiling of the contents of the nest. A pair of Least Bitterns established themselves in the midst of the Yellow-head colony, building their nest and laying their eggs, and from the unceasing animosity displayed toward them by the Blackbirds, suspicion fell on these birds. One of them was shot and its stomach examined but it contained no traces of eggs or young birds. The dismemberment of the nestlings would also seem to exonerate the Bitterns for they would certainly have swallowed them whole. The mystery remained unsolved and I leave it for the speculation of those who may be interested. It is but another of those tragedies constantly occurring which seem to show how natural agencies operate to destroy in great numbers birds and other animals, the too great increase of which would seriously disturb the natural balance of things.

TRANSCRIPT OF NOTES MADE DURING A DETAILED STUDY OF A BREEDING COLONY OF YELLOW-HEADED BLACKBIRDS NEAR MINNEAPOLIS, MINN., IN 1901.

NEST I. *May 13th.* Completed, including lining; entirely dry. *14th.* Empty; pair keep close by. *15th to 17th inclusive.* Empty. *18th.* One egg. *19th.* Two eggs. *20th.* Three eggs. *21st.* Four eggs. *22nd to 30th inclusive.* Four eggs. *31st.* One young bird and three eggs. *June 1st.* Two young birds and two eggs. *2d.* Three young birds and one egg. *3d.* Four young birds. *4th.* Four young birds, pin-feathers showing plainly on two of them. *5th.* Four young birds. *6th.* Not visited, severe wind-storm. *7th.* Nest blown loose and fallen partly over; one young bird dead in water below nest; other three have pin-feathers one inch long. *8th.* Empty; all three young birds gone, and also the one that was drowned under the nest yesterday.

NEST II. *May 13th.* Just begun; a few strands; no shape or outline. *14th.* Only one or two additional pieces added — these still wet. *15th.* First attempt abandoned and have begun new nest since yesterday eight inches above beginnings of first one. A loosely constructed affair of finer and dryer material than usual; about one-half of walls built; a few broad leaves already in place but nest frail and not at all firmly placed. *16th.* Not visited. *17th.* Much larger and firmer; now a bulky nest; upper two inches and inside just added, very wet; two strips of broad dry lining

in place. *18th.* Empty; a little wet material still being added to rim in places; fine lining being put in. Female makes great ado, much worried and utters rolling, squeaking and croaking notes. *19th.* Empty. *20th.* One egg. *21st.* Two eggs. *22d.* Three eggs. *23d.* Four eggs, one much lighter than others. *24th to June 3d inclusive.* Four eggs. *June 4th.* Three young birds and one egg. *5th.* Four young birds. *6th.* Not visited. *7th and 8th.* Four young birds. *9th.* Empty; nest pulled somewhat loose from fastenings.

NEST III. *May 13th.* Female working on nest. *14th.* Walls incomplete; nearly dry; shallow and appears abandoned; no fresh material. *15th and 17th.* Same condition. *18th.* One or two damp strands lying on nest but no repairs. *19th to 21st.* Abandoned and in ruin.

NEST IV. *May 14th.* Nearly ready for lining; still building upper part of walls; upper one-third wet; a few large flat pieces of reed leaves forming bottom inside as though for foundation of lining. *15th.* About same in morning; at 6 P. M. a few wet strips added to rim on west side, woven around stems and hanging down into nest almost to bottom. *16th.* Not visited. *17th.* Appears deserted. *18th.* Abandoned and going to ruin. *21st.* Same.

NEST V. *May 14th.* Ready for lining, a little of which has been placed; wet nearly throughout, but this nest is among thickly standing reeds so that it is protected from sun and wind and would not dry as rapidly as more exposed nests. *15th.* Completely lined, fine reed-tops around upper edge; nest still damp and soggy but lining dry. *16th.* Not visited. *17th.* Empty; dry and firm. *18th.* Empty; in good condition; female close by with bit of reed in bill. *19th.* One egg; fine lining at rim has been added since yesterday. *20th.* Two eggs. *21st.* Three eggs. *22d.* Four eggs. *23d to 31st inclusive.* Four eggs. *June 1st.* One young bird, three eggs. *2d.* Three young birds, one egg. *3d.* Three young birds, one egg. *4th.* Three young birds, one egg; pin-feathers starting on one bird. *5th.* Three young birds, one egg. *6th.* Not visited. *7th.* Empty; no soiling or disarrangement of nest.

NEST VI. *May 14th.* Still in early stage of construction, little more than framework; wall open to bottom on two sides, built up about three-fourths way around. *15th.* Wall completed and first coarse bottom-lining and one or two strands of fine lining placed; female in nest when approached. *16th.* Not visited. *17th.* Completed and quite dry around top; body still damp and soft. A nicely lined nest, the edge thick and well built of reed-plumes. *18th.* One egg. *19th.* Two eggs. *20th.* Three eggs. *21st.* Four eggs, female on nest. *22d to 30th inclusive.* Four eggs; female found on nest 27th and 30th. *31st.* Two young birds and two eggs; female on nest. *June 1st.* Three young birds and one egg. *2d.* Four young birds; female on nest; she made a great hue and cry and called the neighbors around till the reeds were full of them — mostly females. *3d.* Four young birds. *4th.* Empty; inside of nest spotted with blood.

NEST VII. *May 14th.* Nearly ready for lining, a little coarse material already placed. *15th.* Coarse lining all in, no fine top-lining. *16th.* Not visited. *17th.* Empty, in good condition. *18th.* One egg. *19th.* Two eggs. *20th.* Three eggs; coarse lining much disarranged and partly covering eggs. *21st.* Four eggs. *22d.* Four eggs. *23d.* Five eggs. *24th.* Four eggs; nest loosened from its hold on reeds and has slipped down about two feet, now within one foot of water, which is six inches deep; scattered strands left hanging all up and down reeds where nest had slipped. *25th.* Four eggs; nest torn and frayed out on one side. *26th.* Four eggs, warm. *27th to 31st inclusive.* Four eggs. *June 1st.* Two young birds, two eggs. *2d.* Three young birds, one egg. *3d.* Empty; nest clean.

NEST VIII. *May 14th.* Completed; still wet at top in places, protected from sun and wind by thick reeds. *15th.* Empty. *16th.* Not visited. *17th.* Empty, bottom lining a little disarranged. *18th.* Empty, more disarranged. *19th to 21st.* Abandoned.

NEST IX. *May 14th.* Completed and entirely dry, exposed to sun and air. *15th.* Empty; adding fine lining around rim. *16th.* Not visited. *17th.* Empty. *18th to 21st.* Abandoned.

NEST X. *May 14th.* Body finished but still wet nearly throughout owing to protection from sun and wind; large pieces of reed leaves forming bottom of lining already in; first strands of fine lining just placed. *15th.* About complete, still damp and soft. *16th.* Not visited. *17th.* One egg; nest dry and firm. *18th.* One egg. *19th.* Two eggs. *20th* Three eggs. *21st.* Four eggs. *22d.* Five eggs. *23d to 30th inclusive.* Five eggs. *31st.* One egg hatched. *June 1st.* Two eggs hatched. *2d.* Three eggs hatched. *3d.* Five eggs hatched. *4th.* Empty, except two feet of young birds and several small pieces of flesh left in nest.

NEST XI. *May 14th.* Ready for lining; one wide dry leaf in place; upper part of sides and interior of nest still wet. *15th.* Coarse lining nearly complete, no fine lining; a very large and deep nest. *16th.* Not visited. *17th.* Same as on 15th.; no fine lining. *18th.* Empty, no fine lining at rim. *19th.* One egg. *20th.* Two eggs. *21st.* Three eggs. *22d.* Four eggs. *23d to 31st inclusive.* Four eggs. *June 1st.* One young bird, three eggs. *2d.* Three young birds, one egg. *3d.* Four young birds. *4th.* Four young birds; pin-feathers just starting on two of them. *5th.* Four young birds; pin-feathers on two about one-half inch long. *6th.* Not visited. *7th.* Four young birds; pin-feathers one inch long on three and one-half inch long on the fourth. *8th.* Four young birds; tips of brown feathers beginning to show, giving a general brownish hue to the nestlings. *9th.* Empty; blood on inside of nest.

NEST XII. *May 14th.* A completed and entirely dry nest; bottom lining of large pieces of reed-leaves three-fourths inch wide. *15th.* Lining torn out and disarranged; some of the fine reed-tops and broad bottom lining lying across top of nest. *17th.* Badly disarranged and plainly deserted.

NEST XIII. *May 14th.* Upper sides being built, nest wet and soggy throughout; sides incomplete and with holes; a few pieces of wide reed-leaves (dry) already in bottom. *15th.* Coarse lining complete, very little fine lining; nest at this stage not contracted at rim. *16th.* Not visited. *17th.* Empty; in good condition. *18th.* Missed. *19th.* Two eggs. *20th.* Three eggs. *21st.* Four eggs. *22d to 30th inclusive.* Four eggs. *31st.* One young bird, three eggs. *June 1st.* Three young birds, one egg. *2d.* Four young birds. *3d.* Four young birds. *4th.* Four young birds; one downy, one with pin-feathers just starting, one with pin-feathers about one-fourth inch long and the other with pin-feathers about one-half inch long. *5th.* Four young birds. *6th.* Not visited, severe storm. *7th.* Nest evidently blown loose in high wind yesterday; it slipped down about six inches and turned over so that all four young birds fell out; they were all in the water under the nest, dead, evidently drowned; not killed by any animal; later they disappeared.

NEST XIV. *May 14th.* Framework nearly complete, wet throughout; no dry leaves inside; upper edge of walls incomplete. *15th.* Walls complete and part of coarse lining placed; two pieces of latter lying across top of nest ready to be placed in position. *16th.* Not visited. *17th.* Complete and dry; a pretty nest. *18th.* Same. *19th.* One egg. *20th.* Two eggs. *21st.* Three eggs. *22d.* Four eggs. *23d to 31st inclusive.* Four eggs. *June 1st.* One young bird, three eggs. *2d.* Three young birds, one egg. *3d, 4th and 5th.* Four young birds. *6th.* Not visited. *7th.* Empty; four feet of young birds left in nest.

NEST XV. *May 14th.* Ready for lining; black, wet and soggy throughout. *15th.* Part of coarse, and few strands of fine, lining placed; drying out and much lighter colored; this nest was built of very wet and black material so that it was at first very conspicuous. *16th.* Not visited. *17th.* Dry and light colored. *18th.* Empty; two snails in bottom of nest. *19th.* One egg. *20th.* Two eggs. *21st.* Three eggs. *22d to 31st inclusive.* Three eggs. *June 1st.* One young bird, two eggs. *2d.* Three young birds. *3d.* Three young birds. *4th.* Empty; blood spots on inside of nest.

NEST XVI. *May 14th.* Finished; well lined; still wet in walls and bottom and soft on pressure. *15th.* Empty; becoming dry; no coarse broad reed leaves in bottom lining as usual, strips of fine grass instead. *16th.* Not visited. *17th.* Same as on 15th. *18th.* One egg. *19th.* Two eggs. Several large pieces of reed-tops form a fringe three inches high on one side of the nest due to their being loosely woven in the rim, the fine plumes waving in the breeze and forming a sort of one-sided bower; the fine lining otherwise closely placed as usual. *20th.* Three eggs. *21st.* Four eggs. *22d.* Five eggs. *23d.* Five eggs. *24th.* Empty, no sign of eggs; nest is one and one-half feet above water.

NEST XVII. *May 14th.* A large nest; bottom lining in; hole in one side; dry inside and below, still wet throughout walls; no fine lining. *15th.* Apparently entirely completed. *16th.* Not visited. *17th.*

Empty; dry; very little coarse lining, fine lining throughout bottom as well as sides and rim. *18th.* Empty; good condition. *19th.* One egg. *20th.* Two eggs. *21st.* Three eggs. *22d.* Three eggs. *23d.* Three eggs. *24th.* Empty, no sign of eggs; nest about two feet above water, latter only few inches deep.

NEST XVIII. *May 14th.* Completed, ready for fine lining; coarse lining mostly in; soft and soggy on pressure. *15th.* Fine lining about complete; dryer and fairly firm. *18th.* One egg. *19th.* Two eggs. *20th.* Three eggs. *21st.* Four eggs. *22d.* Four eggs. *23d.* Four eggs. *24th.* Empty; no sign of eggs; nest about two feet above water, latter about one and one-half feet deep.

NEST XIX. *May 14th.* Only first strands laid. *15th.* Foundation and one and one-half inches of walls built, forming a broad shallow cup. *17th.* Completed and all of broad lining in place, extending to rim; no fine lining; still a little damp and soft. *18th.* Empty; dry; a very little fine lining. *19th.* Empty. *20th.* One egg. *21st.* Two eggs; these eggs are very unlike in appearance, representing extremes; one has a dirty white ground color with lilac and umber spots, the other pale green ground with less numerous spots giving it a general greenish tone. *22d to 24th inclusive.* Two eggs. *25th.* One egg, no sign of other. *26th.* One egg. *27th.* One egg; cold.

NEST XX. *May 14th.* Walls nearly finished but still full of holes; no coarse lining yet; rim of nest unformed; wet. *15th.* Complete except finer lining; fairly dry but still little soft. *17th.* Complete and dry except lacks usual fine lining at rim, strips of reed-leaves taking its place. *18th.* Empty. *19th.* One egg. *20th.* Two eggs. *21st.* Three eggs. *22d.* Four eggs. *23d to 29th inclusive.* Four eggs. *30th.* Three eggs, no sign of fourth. *31st.* Three eggs, warm. *June 1st.* Three eggs, warm. *2d.* One young bird, two eggs. *3d.* One young bird, two eggs. *4th.* Two young birds, one egg; no pin-feathers showing on young birds. *5th.* Two young birds, one egg; pin-feathers just starting on one young bird. *6th.* Not visited. *7th.* Two young birds, one egg; pin-feathers on one nestling about one half inch long, other still downy. *8th.* Two young birds, one egg. *9th.* Empty.

NEST XXI. *May 15th.* Ragged first part of framework; has been built since yesterday as it is near marked nest and was not then seen; all material very wet and apparently just placed. *16th.* Not visited. *17th to 21st.* No further work; evidently abandoned.

NEST XXII. *May 15th.* Completed and dry nest; evidently missed on 14th; perhaps lining not quite finished, very little fine top material On returning two hours later the lining in nest had been much torn up and disarranged, the broad bottom strips lying across entrance to nest. Two hours later lining only little disarranged. *16th.* Not visited. *17th.* Completed and in good condition; dry and firm. *18th.* Empty. *19th.* One egg. *20th.* Missed. *21st.* Three eggs. *22d.* Four eggs. *23d to 31st inclusive.* Four eggs. *June 1st.* One young bird, three eggs.

2d. Two young birds, two eggs. *3d.* Empty; both young birds and both unhatched eggs gone, no trace of either.

NEST XXIII. *May 15th.* Completed and dry nest; an abandoned attempt at a nest, consisting only of foundation, eight inches below bottom of this nest. *16th.* Not visited. *17th.* Empty; appears abandoned. *18th.* Empty; lining all pulled out. *19th to 21st.* Empty; evidently abandoned.

NEST XXIV. *May 15th.* Beginnings of a nest; damp but appears deserted. *16th.* Not visited. *17th.* Not much further work, only one damp strand apparently recently placed. *18th.* Missed. *19th.* Walls as to height about completed but full of holes, two of the latter are large open spaces; top and all of inside freshly laid and wet; a ragged, crude nest. *20th.* Still adding new material to walls, wet and dark colored; dry nearly to rim outside; a few pieces of broad lining. *21st.* Broad lining complete; no fine rim lining; quite dry. *22d.* Same. *23d.* One egg. *24th.* Two eggs. *25th.* Two eggs. *26th.* Three eggs. *27th.* Three eggs. *28th.* Not visited. *29th.* Empty, no sign of eggs; nest not soiled nor torn; two and one-half feet above water which is very shallow. *30th to June 3d.* Empty.

NEST XXV. *May 15th.* Nearly completed framework but still full of holes and upper edge still ragged and unfinished; wet. This nest is in an open place and could not have been overlooked yesterday; apparently it has been built thus far in last twenty-four hours. Female after working all day, began about 5.15 P. M. to pull nest to pieces and begin a new nest about fifteen feet away, using at first the old material. *16th.* Not visited. *17th to 21st.* Abandoned; very little material removed.

NEST XXVI. *May 15th.* 6 P. M. First few strands of a new nest, not more than six or eight pieces; nearly dry, just removed from nest No. XXV which the female is pulling to pieces and removing to this place fifteen feet away. *16th.* Not visited. *17th.* A large bulky deep body, walls full height but still full of holes; wet except the strands at bottom. *18th.* Abandoned after being almost ready for lining. *19th.* Same; no further work; a loose poor structure. Nests III, XXV, XXVI and XLIV were built by the same bird and abandoned at various stages; all badly and loosely constructed; all near together. (See nest XLIII which was her finished product).

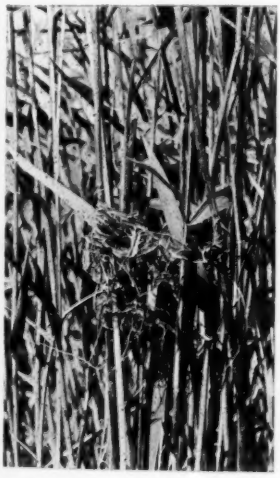
NEST XXVII. *May 15th.* First strands of nest; dry and perhaps abandoned. *17th.* No further work; abandoned.

NEST XXVIII. *May 15th.* First dozen strands of a nest; dry material; tying crossing reeds together; probably abandoned attempt. *16th.* Not visited. *17th.* The above attempt was abandoned and to-day there is a bulky well built nest directly over it at a distance of twelve inches; walls complete and first strands of broad and fine lining being placed at same time; walls very wet and soggy and dark colored. These birds, both male and female, show much more concern than usual, both flying and perching about and croaking in a worried manner. *18th.* Completed

YELLOW-HEADED BLACKBIRD STUDIES.

Upper figure, a nest in course of construction, still wet and soggy, and exhibiting unskilled workmanship.

Lower figure, nest VII; loosened from its hold on the reeds and slipped down two feet, leaving scattered strands hanging in its descent; not abandoned.



YELLOW-HEADED BLACKBIRD STUDIES.

Four stages in the construction of the nest.

1.

3.

2.

4.

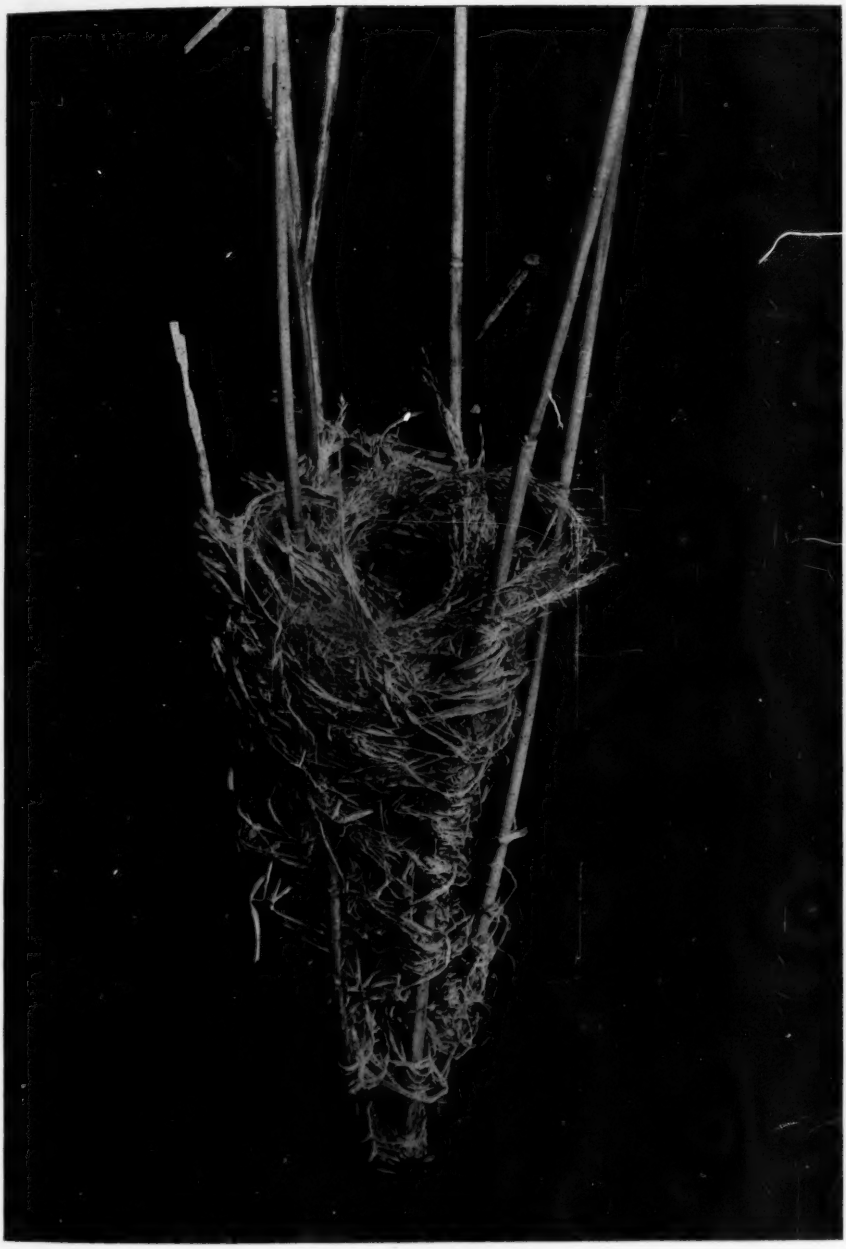
YELLOW-HEADED BLACKBIRD STUDIES.

1. An unusually small, shallow nest; outside depth 4 inches. 2. An unusually large, deep nest. 3 and 4. Two nests showing abandoned beginnings below completed nests. 1, 2, and 3 taken with the same lens at the same measured distance.

YELLOW-HEADED BLACKBIRD STUDIES.

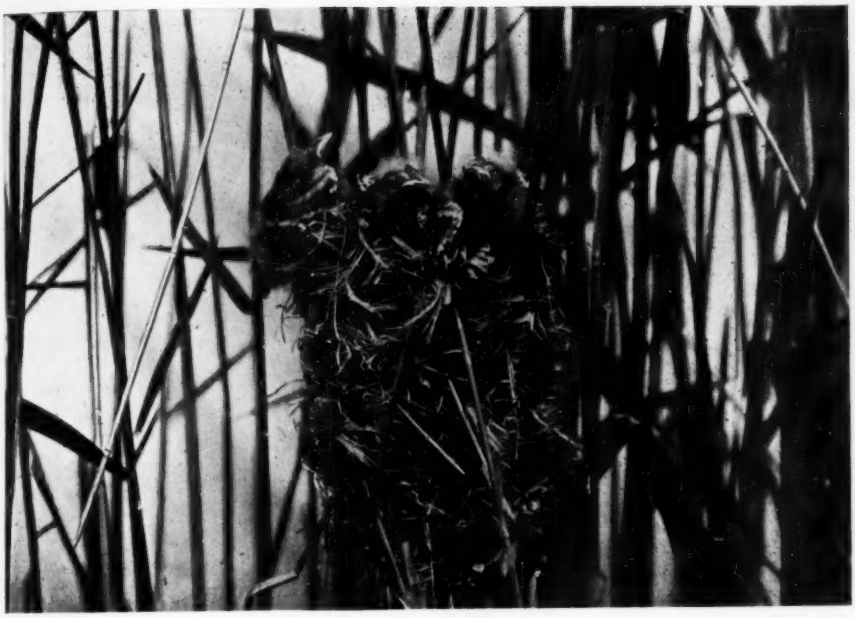
Upper figure, nest built in unusual and unsafe position near top of reeds.

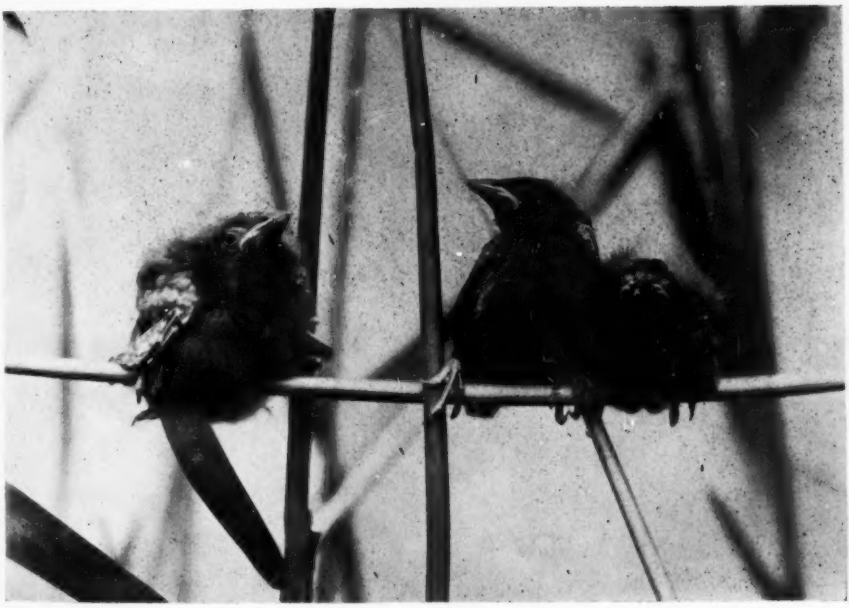
Lower figure, nest among bulrushes in upland slough, when high water in the bottom-lands had driven the birds from their usual quill-reed haunts.



YELLOW-HEADED BLACKBIRD STUDIES.

A studio-photograph of an unusually well-built and partially canopied nest; height, 11 inches.





YELLOW-HEADED BLACKBIRD STUDIES.

Upper figure, three fledglings about ready to leave the nest for life among the reed-tops where they are almost as agile as squirrels.

Lower figure, the same three fledglings, twenty-four hours later, showing their rapid development.

1.

2.

3.

YELLOW-HEADED BLACKBIRD STUDIES.

1. Female feeding young by regurgitation.
2. Male hastily feeding young, after showing much timidity in approaching nest.
3. Interior of nest showing coarse bottom lining and fine rim lining.

1

2

3

YELLOW-HEADED BLACKBIRD STUDIES.

Song attitudes of the male Yellow-head. 1. The quiet, not unmusical first notes. 2. The more vigorous middle notes, showing the swelling throat and spreading tail, leading up to the violent contortions shown in 3, during which is emitted the final raucous scream. The entire song may be recalled by the syllables *pop'*, *go-o-es*, *th' we-e-e-zel'*, the last syllables long drawn out, with an upward trend at the finish.

nest, except no fine lining but coarse lining extends to top; appears like completed nest. *19th.* Empty; a little fine lining at rim; nest not much contracted at rim. *20th and 21st.* Empty. *22d.* One egg. *23d.* Two eggs. *24th.* Three eggs. *25th.* Four eggs. *26th to June 3d inclusive.* Four eggs. *4th.* Empty; no sign of eggs or soiling of nest.

NEST XXIX. *May 15th.* Bulky and loose foundation; dry, appears abandoned. *16th to 20th.* Abandoned.

NEST XXX. *May 15th.* Completed nest; lining all in; almost entirely dry and firm; nest somewhat tipped. *16th.* Not visited. *17th.* Empty; nest near edge of reed-clump where water at present is only three or four inches deep. *18th.* Empty. *19th.* One egg, *20th.* Two eggs. *21st.* Only one egg remaining; the other cannot be found; nearly all the fine rim lining and most of the coarse bottom lining has been torn out and lies on water and among reeds; rim of nest on one side torn and ragged; the walls reduced to thin shell full of holes. *22d.* Two eggs. *23d.* Two eggs; twelve snails in nest; apparently abandoned. *24th to 26th.* Abandoned.

NEST XXXI. *May 15th.* Beginnings of a nest, first shapeless lashings of reed-stems together. *16th to 20th.* Abandoned without further work.

NEST XXXII. *May 15th.* First dozen strands of nest, upper one wet, so just placed. *17th.* Abandoned after very little further work.

NEST XXXIII. *May 17th.* Shallow basket-like structure, first wet beginnings of a nest. *18th.* Walls about completed, but still loose and with crevices; very wet and dark; a few broad pieces of dry reed-leaves in place. *19th.* Complete except last strands of fine lining; a well built, pretty nest, neatly lined. *20th.* Empty; one piece of broad lining lying loose in nest. *21st.* Empty; in good condition. *22d.* One egg. *23d.* Two eggs. *24th.* Two eggs. *25th.* Three eggs. *26th.* Two eggs; neither inside of nest nor remaining eggs soiled. *27th to June 3d inclusive.* Two eggs, warm when visited on 31st. *4th.* Empty; shell of one egg lodged on reeds under nest.

NEST XXXIV. *May 17th.* Built since 5 P. M. May 15th, three feet from nest XXI and probably by the bird that abandoned that attempt; framework half completed, walls thin and full of holes, rim not yet reached; wet throughout. *18th.* Completed and well lined, both coarse and fine lining; a well built, compact, bulky and pretty nest. *19th to 21st inclusive.* Empty but in good condition. *22d.* One egg. *23d.* Two eggs. *24th.* Three eggs. *25th.* Four eggs; whole set marked with light reddish brown giving an unusual reddish-brown cast to the eggs, all with conspicuous hair-line scrawl-markings at larger ends. *26th to June 3d inclusive.* Four eggs. *June 4th.* One young bird, three eggs. *5th.* Two young birds, two eggs. *6th.* Not visited. *7th.* Empty; no sign of birds or eggs.

NEST XXXV. *May 17th.* A new nest since 6 P. M. May 15th; completed except fine lining a little of which is in place. *18th.* Same; no fine lining of any account; appears finished. *19th.* Lining and rim disarranged; seems abandoned. *20th and 21st.* Abandoned.

NEST XXXVI. *May 17th.* Built since noon May 15th; bulky lower two-thirds of nest, walls very incomplete; all wet except bottom strands. *18th.* Have added one inch to walls; wet at rim and inside; the new material placed around rim and throughout interior thus keeping inside of nest wet until ready for lining. *19th.* Body complete and little of coarse lining in place; a loose nest, can see through chinks here and there; incomplete rim; among small reeds growing in water only three or four inches deep. *20th to 27th.* Empty; abandoned.

NEST XXXVII. *May 17th,* 7 A. M. First few strands of a new nest; material wet and just placed near nest XXIII (abandoned). *18th.* A little additional work; wet. *19th to 22d.* Abandoned without further work; a thin shallow basket.

NEST XXXVIII. *May 17th.* Built since 6 P. M. May 15th, close by nest IV which appears abandoned; a large nest nearly ready for lining; a few pieces of broad bottom lining in place; very wet and walls still full of holes and crevices. *18th.* Walls just completed, upper inch wet and dark, just placed; coarse lining loosely laid and some of upper fine lining well in place. *19th.* One egg; a handsome nest, well lined and with much fine rim lining; dry throughout. *20th.* Two eggs. *21st.* Three eggs. *22d.* One egg, no sign of other two. *23d.* One egg; snail in nest. *24th.* One egg. *25th.* One egg. *26th.* One egg, cold. *27th.* Same egg and one Cowbird's egg deposited since yesterday!

NEST XXXIX. *May 17th.* A new nest since evening of May 15th, near nest XXI (an abandoned beginning); ragged outline of whole nest but walls merely run up with coarse material, full of holes and openings and entirely lacking on northeast side; very wet. *18th to 21st.* Abandoned with no further work.

NEST XL. *May 17th.* First few wet strands just placed. *18th and 19th.* No further work. *20th.* A little wet material added this morning. *21st.* Abandoned.

NEST XLI. *May 17th.* New structure since 5 P. M. May 15th; bulky framework two-thirds complete; very wet. *18th.* A little material added to walls which are filled in and without holes but decidedly lower than usual; a shallow and imperfect affair. *19th.* Appears abandoned. *20th.* Two or three wet strands added this morning. *21st.* Good condition but no fine lining. *22d.* Same. *23d.* One egg. *24th.* Two eggs. *25th.* Three eggs. *26th.* Four eggs. *27th to June 4th inclusive.* Four eggs. *5th.* Empty; no sign of eggs.

NEST XLII. *May 17th.* Foundation of nest, mostly wet. *18th.* Body well built; rim still incomplete and ragged; one or two broad dry strips of reed-leaves in bottom. *19th.* Considerable broad lining, some loose and not placed. *20th and 21st.* Completed; empty. *22d.* One egg. *23d.* Two eggs. *24th.* Three eggs. *25th.* Three eggs. *26th.* Three eggs of owner and one Cowbird's egg. *27th to June 2d inclusive.* Same. *3d.* Empty; no sign of eggs.

NEST XLIII. *May 18th.* In small bunch of reeds in open place;

begun since yesterday; first shallow cup, bottom and one inch of sides, wet; two or three dry leaf blades already carelessly placed as part of bottom lining. *19th.* Complete except lining and finishing rim. *20th.* Coarse lining in place; a few strands about rim. *21st.* Finished nest in good condition. This nest is the first finished, successful effort of the bird that constructed nests III, XXV, XXVI and XLIV which were failures. *22d.* Empty. *23d.* One egg. *24th.* Two eggs. *25th.* Three eggs. *26th.* Two eggs, no sign of the other. *27th to June 2d inclusive.* Two eggs, bird incubating. *3d.* Empty; no sign of eggs.

NEST XLIV. *May 18th.* First outline of bottom cup, open lacework *19th to 22d.* No further work, abandoned.

NEST XLV. *May 18th.* A large bulky nest built since yesterday; coarse lining all in. In conspicuous place and could not have been missed. *19th.* Not visited. *20th.* Completed and empty. *21st.* Not visited. *22d.* Two eggs. *23d.* Three eggs. *24th.* Four eggs. *25th to June 2d inclusive.* Four eggs. *3d.* One young bird, three eggs. *4th.* Empty; blood spots on inside of nest.

NEST XLVI. *May 18th.* First few strands of a nest, just placed. *19th.* Loose bowl or cup-shaped bottom, ragged and imperfect; wet. *20th.* Walls completed and lining begun. *21st.* One egg; nest nearly dry and firm. *22d.* Empty, except two snails in nest; one piece of coarse bottom lining lying loosely across inside of nest. *23d to 27th.* Abandoned.

NEST XLVII. *May 19th.* First framework of nest, built since yesterday close by nest XXII; walls simply lacework on stems. *20th.* Not visited. *21st.* Still working; upper parts of walls unfinished, wet and black material; some coarse bottom lining being placed. *22d.* A few strands of fine lining. *23d.* Nothing more done. *24th.* One egg. *25th.* Two eggs. *26th.* Three eggs. *27th.* Four eggs. *28th.* Not visited. *29th to June 5th inclusive.* Four eggs. *6th.* Not visited. *7th.* Empty; no sign of eggs.

NEST XLVIII. *May 19th.* First beginnings of a nest since yesterday; only one or two wet strands; four inches below these are other strands previously securely wound around the reed-stems. *20th.* Bottom and walls partly constructed; wet. *21st to 26th.* No further work; abandoned.

NEST XLIX. *May 19th.* Seen first to-day; may have been overlooked yesterday; a large bulky nest situated low down among small reeds where water is only three or four inches deep; coarse lining about all in and a little fine lining; one of the largest nests seen. *20th and 21st.* Empty. *22d.* One egg. *23d.* Two eggs. *24th.* Three eggs. *25th.* Four eggs. *26th to June 3d inclusive.* Four eggs. *4th.* One young bird, three eggs. *5th.* Empty; no sign of nestling or eggs.

NEST L. *May 19th.* Beginnings of nest since yesterday, first loose strands; dry; near nest XLI. *20th and 21st.* Abandoned without additional work. (Apparently the bird that temporarily abandoned nest XLI began this nest and then went back and completed her first effort.)

NEST LI. *May 19th.* Basket-like bottom of fine dry material placed since yesterday. *20th and 21st.* Abandoned without further work.

NEST LII. *May 20th.* A new nest partly built of finer and dryer material than usual. *21st.* Well built; still adding some fine wet material around rim; coarse lining in; rim not yet completed. *22d, 23d and 24th.* Same. *25th.* One egg. *26th.* Two eggs. *27th.* Three eggs. *28th.* Not visited. *29th.* Four eggs, one much lighter colored than others. *20th to June 5th inclusive.* Four eggs. *6th.* Not visited. *7th.* Two young birds, two eggs; female on nest. *8th.* Three young birds, one egg. *9th to 13th inclusive.* Same. (Examination of colony discontinued on 13th.)

NEST LIII. *May 20th.* A completed nest, well lined; low down in reeds where water is shallow; must have been overlooked heretofore; empty. *21st and 22d.* Empty. *23d.* Not visited. *24th.* Two eggs. *25th.* Three eggs. *26th.* Four eggs. *27th to June 5th inclusive.* Four eggs. *6th.* Not visited. *7th.* Empty; no sign of eggs.

NEST LIV. *May 21st.* A few strands of new nest. *22d to 27th.* No further work; abandoned.

NEST LV. *May 21st.* New beginning since yesterday; a shallow unshaped bottom; *22d.* Walls entirely completed; few strands of coarse lining in place. *23d to 24th.* Same; empty. *25th.* Fine lining at rim completed; empty. *26th.* One egg. *27th.* Two eggs. *28th.* Not visited. *29th.* Two eggs. *30th.* Two eggs; included reeds on one side seem to be pulling away from nest. *31st to June 5th inclusive.* Two eggs. *6th.* Not visited. *7th.* Nest all torn to pieces and fallen down, possibly due to high wind yesterday; egg shells scattered under nest.

NEST LVI. *May 21st.* Two or three coarse wet strands just placed. *22d to 26th.* Abandoned.

NEST LVII. *May 21st.* Large new beginning since yesterday; walls well up but full of holes; wet and dark throughout. *22d.* Coarse lining and a few strands of fine lining in. *23d.* Nothing more done; empty. *24th.* One egg. *25th.* Two eggs. *26th.* Three eggs. *27th.* Four eggs. *28th.* Not visited. *29th to June 5th inclusive.* Four eggs. *6th.* Not visited. *7th.* Three young birds, one egg. *8th.* Four young birds. *9th.* Two young birds. *10th.* Two young birds. *11th.* Empty; no sign of nestlings.

NEST LVIII. *May 23d.* Cup-shaped bottom not seen yesterday. *24th.* Same. *25th.* Walls well up; few strands of coarse lining in place; wet and soggy. *26th.* Coarse, and little of fine lining in place. *27th.* Same. *28th.* Not visited. *29th.* Two eggs. *30th.* Three eggs. *31st.* Four eggs. *June 1st to 4th inclusive.* Four eggs. *5th.* Three eggs, no sign of fourth. *6th.* Not visited. *7th.* Empty; no sign of eggs.

NEST LIX. *May 27th.* A few strands of dry material have hung here for a week past but since yesterday a new nest has been started a few inches from these and the walls are about one-half completed; wet and soggy. *28th.* Not visited. *29th.* Walls completed, almost dry; coarse

lining in, apparently it was put in dry for it is perfectly so to-day, consists of bright yellow dry strips of old reed-leaves and they stand up loosely from the bottom of the nest at present. *30th.* Coarse lining arranged in place since yesterday; some fine lining in; contracted little, if any, at rim; entirely dry. *31st.* One egg. *June 1st.* Two eggs. *2d.* Three eggs; female on nest, she called all her neighbors. *3d.* Four eggs. *4th and 5th.* Four eggs. *6th.* Not visited. *7th.* Empty; no sign of eggs.

NEST LX. *May 29th.* Beginning of nest since morning of 27th; shallow bottom, walls hardly started; material wet and dark. *30th.* Walls about one-half done, lower part dry; one strip of broad reed leaf in bottom. *31st.* Nothing new seems to have been added; dry outside, still damp inside; loosely constructed. *June 1st.* Few strands added; entire nest almost dry; appears abandoned; one side of nest higher than other. *2d and 3d.* No new work. *4th.* Bottom lining pulled up loosely; abandoned.

NEST LXI. *May 30th.* Begun since yesterday; shallow cup, very loosely built, full of holes; wet and soggy. *31st.* About one inch more built on walls; one or two pieces of coarse split reed stalks in bottom of nest. *June 1st.* About three-fourths inch more added to walls; wet. *2d.* Coarse lining in and some of fine lining. 3*d.* Same. *4th and 5th.* Empty. *6th.* Not visited. *7th.* Two eggs. *8th.* Three eggs. *9th.* Three eggs. *10th.* Empty; no sign of eggs.

NEST LXII. *June 2d.* A bunch of wet material tied around three reeds; just above abandoned beginning of nest III. *3d.* Two more bunches of wet material around reeds; no form as yet. *4th to 8th.* Nothing further; abandoned.

BIRDS OF CENTRAL ALBERTA.

BY SIDNEY S. S. STANSELL.

I AM located thirty miles northwest of the city of Edmonton, the capitol of Alberta, which is situated in about 114° west longitude and 53½° north latitude. It is in the center of a rich farming district where all kinds of small grains and small fruits are raised in abundance.

The country is peculiar in having large and small 'pot holes,' large and small lakes, large and small spruce and tamarack swamps. Portions are very heavily wooded, mostly with birch, black and white poplars, and with an almost inpenetratable deciduous undergrowth. The larger trees afford a splendid nesting site for the arboreal hawks and owls; the birches are the delight of the vireos and grosbeaks, for never was there a more magnificent home for them. The thick deciduous undergrowth forms an ideal retreat for some of the warblers and ground nesting birds. Lakes of all sizes, from a quarter of an acre up to several thousand acres in extent, are found in large numbers; small sloughs and marshy hay meadows are everywhere in evidence, furnishing admirable places for ducks, snipe, etc.

My list of birds was begun in the summer of 1906, and although I was not able to do much that year, during the summer of 1907–08 and 1909 I kept a careful list, noting the date of first arrival, when the species became common, and when it passed on further north, in case it did not breed here.

This is a most interesting locality for one who has time for field work. I have been greatly surprised on several occasions by seeing birds that I did not think were here, nor did any of my ornithological books give them as residents here, nor even as accidental visitants. Of all my surprises the two greatest were when I saw the Mourning Dove and the American Woodcock — two species which breed here, but how abundantly I cannot at present venture to say.

My list would have been a great deal larger if I had been able to visit the districts lying to the west and south, but as time would not

permit me to do this I will have to be content with the list here given and trust that new species may be added each year until the list is complete.

LIST OF SPECIES.

1. **Æchmophorus occidentalis.** WESTERN GREBE.— These birds are somewhat rare in this immediate locality but are quite common and nest in very large colonies some sixty miles to the southeast.

2. **Colymbus holbœlli.** HOLBŒLL'S GREBE.— Our most common form of the grebe family, found in nearly every pond and small lake of an acre or more in extent.

3. **Colymbus auritus.** HORNED GREBE.— Seen on several occasions and found nesting, but not common.

4. **Colymbus nigricollis californicus.** EARED GREBE.— Fairly common but not so numerous as Holbœll's Grebe.

5. **Podilymbus podiceps.** PIED-BILLED GREBE.— This is the rarest of the grebes in this locality.

6. **Gavia immer.** LOON.— Very numerous. A pair is usually found on every lake of more than an acre in extent and the larger lakes of from five to twenty-five acres have two or more pairs nesting on them.

7. **Larus argentatus.** HERRING GULL.— A great many are seen during spring and fall, and at times through the summer, but I have not found them nesting.

8. **Larus philadelphia.** BONAPARTE'S GULL.— Very rare; seen but twice in four years.

9. **Sterna forsteri.** FORSTER'S TERN.— I have seen but one pair in this locality but I have authentic report of large colonies some sixty miles to the southeast of here.

10. **Sterna hirundo.** COMMON TERN.— Not very common in this vicinity but quite numerous on some of the larger lakes.

11. **Sterna paradisæa.** ARCTIC TERN.— I have seen but one pair in this locality, in 1907.

12. **Hydrochelidon nigra surinamensis.** BLACK TERN. Very abundant, nesting in nearly every accessible pond or lake, laying their three eggs on a pile of decayed vegetation or on top of a deserted grebe's nest.

13. **Mergus americanus.** MERGANSER.— Seen but once, on the Saskatchewan River near Edmonton.

14. **Mergus serrator.** RED-BREASTED MERGANSER.— Very common in the spring and fall but has not been found breeding.

15. **Anas platyrhynchos.** MALLARD.— Our most abundant duck, nesting either in the sloughs or several hundred yards from the water on the uplands usually covered with deciduous undergrowth.

16. **Nettion carolinensis.** GREEN-WINGED TEAL.— Very common along the smaller and shallower ponds and lakes where it places its nest in the shelter of a bush or under the edge of a pile of brush.

17. **Querquedula discors.** BLUE-WINGED TEAL.— Not so common as *N. carolinensis*, but seen quite often.

18. **Spatula clypeata.** SHOVELLER.— More common in spring and fall than in summer. Usually found in company with the Mallard.

19. **Dafila acuta.** PINTAIL.— Not nearly as numerous as the Mallard, but quite often found nesting.

20. **Marila americana.** REDHEAD.— Very rare; seen only during spring and fall.

21. **Marila vallisneria.** CANVAS-BACK.— Very rare; about as common as *M. americana.*

22. **Marila affinis.** LESSER SCAUP DUCK.— Fairly common in spring and fall, but not met with during the summer.

23. **Marila collaris.** RING-NECKED DUCK.— Very rare; seen but once, during the spring of 1907.

24. **Clangula clangula americana.** GOLDEN-EYE.— Quite common during the spring and fall and met with occasionally in summer. A nest found near here with ten eggs.

25. **Charitonetta albeola.** BUFFLE-HEAD.— Almost as common as the Mallard; nearly every small pond has its pair, and some of them two pairs, of this beautiful little duck. When two or more pairs occupy a single pond, the males are usually very pugnacious, often quarreling and trying to drive each other off the pond for hours at a time.

26. **Harelda hyemalis.** OLD-SQUAW.— Only one specimen seen, which was brought in by a taxidermist.

27. **Oidemia americana.** SCOTER.— Several of these birds were seen flying over Little Devils Lake, July 7, 1909,— the only ones I have seen.

28. **Oidemia deglandi.** WHITE-WINGED SCOTER.— Seen but twice, once in May and once in July.

29. **Oidemia perspicillata.** SURF SCOTER.— One male seen July 7, 1909, on the Sturgeon River, some ten miles to the northwest.

30. **Chen hyperborea.** SNOW GOOSE.— But one specimen seen. Very rare.

31. **Branta canadensis.** CANADA GOOSE.— A very common migrant; great flocks seen each spring and fall. They nest about sixty miles west of here.

32. **Branta nigricans.** BLACK BRANT.— Seen but twice; very rare in this immediate locality.

33. **Botaurus lentiginosus.** BITTERN.— Quite common along the sloughs and marshy lands, where it nests.

34. **Ardea herodias.** GREAT BLUE HERON.— Very rare in this immediate vicinity, but nests in large colonies some sixty miles to the southeast.

35. **Grus americana.** WHOOPING CRANE.— A very common migrant, stopping at least for part of the summer along the larger lakes. One nest was located, which was afterwards abandoned.

36. **Grus canadensis.** LITTLE BROWN CRANE.— Seen occasionally, but not known to nest here.

37. **Rallus virginianus.** VIRGINIA RAIL.— Very rare; identified but once.

38. **Porzana carolina.** SORA RAIL.— Their call is heard during the summer along nearly every slough and along the edge of every lake or pond that affords them a nesting site. I have found them nesting in bunches of grass growing in three feet of water, twenty yards from shore.

39. **Fulica americana.** COOT.— Very common, constructing its nest of rushes usually about six inches above the water in overflown meadows and along the borders of lakes and ponds.

40. **Lobipes lobatus.** NORTHERN PHALAROPE.— I have seen but one specimen, brought in by a taxidermist.

41. **Steganopus tricolor.** WILSON'S PHALAROPE.— Only one pair seen, May 23, 1908.

42. **Philohela minor.** WOODCOCK.— I had this species reported to me both in the spring and fall of 1908, but did not observe them myself until July 1, 1909, when I saw six or eight along the edge of a wet meadow.

43. **Gallinago delicata.** WILSON'S SNIPE.— Very common. Their nests are found in wet hay meadows and marshy lands, consisting of merely a depression in the ground lined with a few grasses or without lining.

44. **Totanus melanoleucus.** GREATER YELLOW-LEGS.— Although not abundant, this species is fairly common, nesting in very wet sloughs in marshy lands. Observed young June 28, 1909.

45. **Totanus flavipes.** YELLOW-LEGS.— Less abundant than the last but seen quite often.

46. **Helodromas solitarius.** SOLITARY SANDPIPER.— Quite common here, almost as numerous as the Spotted Sandpiper. Found a nest in 1908 up 35 feet in a white birch tree, containing three young and one addled egg. The nest was a Robin's, probably two or three years old.

47. **Bartramia longicauda.** UPLAND PLOVER.— Very rare, only a few pairs having been seen.

48. **Actitis macularia.** SPOTTED SANDPIPER.— Very common along the edges of nearly every lake, usually in company with the Solitary Sandpiper.

49. **Oxyechus vociferus.** KILDEER.— Very common where there are lakes and ponds.

50. **Bonasa umbellus umbelloides.** GRAY RUFFED GROUSE.— Very common in the heavily wooded portion.

51. **Bonasa umbellus togata.** CANADIAN RUFFED GROUSE.— Very common; about as numerous as *B. umbellus umbelloides.* Saw several broods of both species during the summer of 1909, when they were more numerous than three years ago. Severe winters kill a great many of these birds. They feed largely in winter on poplar buds and any berries that remain on the bushes during the winter; especially the high-bush cranberry.

52. **Pediœcetes phasianellus.** SHARP-TAILED GROUSE.— Very rare; seen but a few times and then only a few at a time.

53. **Zenaidura macroura carolinensis.** MOURNING DOVE.— Only one seen, on June 28, 1909.

54. **Circus hudsonius.** MARSH HAWK.— Quite common in the more open districts, especially in localities where the land is low and marshy.

55. **Accipiter velox.** SHARP-SHINNED HAWK.— Not very common.

56. **Accipiter cooperi.** COOPER'S HAWK.— Seen but once,— in May, 1907, near Edmonton.

57. **Astur atricapillus.** GOSHAWK.— Quite common; makes its home mostly in the deeply wooded portions of the country.

58. **Buteo borealis calurus.** WESTERN RED-TAIL.— Quite common in the more open portions; very few in this immediate wooded locality.

59. **Buteo swainsoni.** SWAINSON'S HAWK.— Very rare in this immediate locality, but nests some twelve miles to the westward.

60. **Buteo platypterus.** BROAD-WINGED HAWK.— Fairly common, where they nest preferably in birch trees at a low elevation.

61. **Archibuteo lagopus sancti-johannis.** ROUGH-LEGGED HAWK.— Quite common.

62. **Aquila chrysaëtos.** GOLDEN EAGLE.— Fairly common in the wooded portions where they nest in the tallest spruces, or more commonly in poplars.

63. **Haliæetus leucocephalus.** BALD EAGLE. Not as common as *A. chrysaëtos.* A nest was located in top of large poplar tree, up sixty feet, which contained nearly full-fledged young June 29, 1909. This nest was near a very large lake.

64. **Falco rusticolus.** GRAY GYRFALCON.— Rare. Seen but once, which was during the severe winter of 1906–07.

65. **Falco columbarius richardsoni.** RICHARDSON'S PIGEON HAWK.— Seen here each year, but quite rare.

66. **Falco sparverius.** SPARROW HAWK.— Quite common; more numerous in the semi-wooded portions and where the country is partially settled than in the uninhabited deep woodlands.

67. **Asio accipitrinus.** SHORT-EARED OWL.— Seen but once, June 7, 1909, in the edge of a large swamp.

68. **Cryptoglaux acadica.** SAW-WHET OWL.— Only one seen. I was attracted to it one day in the winter of 1907–08 by the chatter of about fifty Canada Jays. I immediately saw it was a Saw-whet and added the skin to my collection.

69. **Bubo virginianus pallescens.** WESTERN HORNED OWL.— Fairly common in the deep woods where it appropriates an old hawk's nest as a suitable place to rear its young.

70. **Nyctea nyctea.** SNOWY OWL.— Somewhat rare in this locality although a nest was found with six eggs, which two days later became six little fluffy balls of down. This was June 10, 1909.

71. **Surnia ulula caparoch.** HAWK OWL.— These birds were very common during the severe winter of 1906–07, but have been quite rare since. One nest was found in 1909 with six eggs, in a dead stub in a spruce swamp.

72. **Ceryle alcyon.** BELTED KINGFISHER.— Extremely rare, having been seen but a few times. Once a bird came within a few feet of the house and sat perched in a tree for several minutes.

73. **Dryobates villosus leucomelas.** NORTHERN HAIRY WOODPECKER.— Fairly common here, at certain times only.

74. **Dryobates pubescens nelsoni.** NORTHERN DOWNY WOODPECKER.— Fairly common.

75. **Picoides arcticus.** ARCTIC THREE-TOED WOODPECKER.— Quite common, from early fall until late in spring.

76. **Sphyrapicus varius.** YELLOW-BELLIED SAPSUCKER.— The most common of all the Woodpeckers. Nests generally in live white poplar trees, anywhere from four feet to fifty feet from the ground. I have found several sets of eggs where incubation was very much advanced when there were only three eggs, so presume they were complete sets.

77. **Ceophlœus pileatus abieticola.** NORTHERN PILEATED WOODPECKER. — Very rare; seen only in deep woodlands.

78. **Colaptes auratus luteus.** NORTHERN FLICKER.— In the summer of 1906 these birds were very scarce; by 1908 they were very common, and during the summer of 1909 were more numerous than during 1908.

79. **Chordeiles virginianus henryi.** WESTERN NIGHTHAWK.— Very common. Nests on some hill in the edge of the woods where they deposit their two eggs on the bare ground.

80. **Archilochus colubris.** RUBY-THROATED HUMMINGBIRD.—Very rare; seen but a few times.

81. **Tyrannus tyrannus.** KINGBIRD.— Very common, nesting in small trees or on the tops of old burned stubs.

82. **Sayornis phœbe.** PHŒBE.— Very common, nesting in barns, deserted houses, or under the bank of some stream; raises two broods.

83. **Sayornis saya.** SAY'S PHŒBE.— Several birds seen in the yard one day only.

84. **Myiochanes richardsoni.** WESTERN WOOD PEWEE.— Very common, placing its nest either on a horizontal limb or in the fork of an upright branch. The nest is much larger than that made by the eastern form.

85. **Empidonax flaviventris.** YELLOW-BELLIED FLYCATCHER.— Very rare. Seen only during the summer of 1906, near Edmonton, where I secured a specimen and photographed the nest and eggs.

86. **Empidonax minimus.** LEAST FLYCATCHER.— Very numerous. Their nests are placed in small trees or bushes at any elevation above three feet from the ground.

87. **Cyanocitta cristata.** BLUE JAY.— Quite common, but not as numerous as *P. canadensis.* Last year they nested within one hundred yards of the house.

88. **Perisoreus canadensis.** CANADA JAY.— Very common, nesting in February, March, or April, according to the severity of the winter. The nest is located either in a willow or evergreen tree, usually spruce, anywhere from seven to thirty feet up.

89. **Corvus corax principalis.** NORTHERN RAVEN.— Somewhat rare. Seen only during spring or fall.

90. **Corvus brachyrhynchos.** CROW.— Very common in the older and more settled parts but rarely seen or heard in the deep woods.

91. **Molothrus ater.** COWBIRD.— Very numerous, following cattle and horses, flying upon their backs and eating mosquitoes.

92. **Zanthocephalus zanthocephalus.** YELLOW-HEADED BLACKBIRD.— Very rare; seen but once, which was in the spring of 1909.

93. **Agelaius phœniceus fortis.** THICK-BILLED REDWING.— Very numerous. Nests in same manner as the eastern form.

94. **Sturnella magna neglecta.** WESTERN MEADOWLARK.— The song of this bird is very much different from that of the eastern form, it having more of a blackbird-like call, and is much sweeter. They are becoming quite common.

95. **Icterus galbula.** BALTIMORE ORIOLE.— During the summer of 1906 these birds were very scarce but are now becoming more numerous, even penetrating the more heavily wooded sections.

96. **Euphagus carolinus.** RUSTY BLACKBIRD.— Nearly everywhere common but nowhere numerous. Usually nest along some slough or creek where they place their nests from three to ten feet above the water. The male of a pair which were nesting in a small slough near my house was suddenly taken away to appease the hunger of some young Goshawks. The female soon mated again, and this time they chose a birch tree in the deep woods, about one hundred yards from the slough, where they raised their brood undisturbed.

97. **Euphagus cyanocephalus.** BREWER'S BLACKBIRD.— Somewhat more numerous than the preceding. Their nests are usually placed on the ground, in a brushpile or hollow tree, or at a low elevation in bushes.

98. **Quiscalus quiscula æneus.** BRONZED GRACKLE.— Very common. Many nests are placed in dead stubs, where a cavity has been made, either by some woodpecker or by a fire.

99. **Hesperiphona vespertina.** EVENING GROSBEAK.— Quite rare. I located a nest in June, 1908, which contained a dead full-fledged young male. The nest was up 40 feet in a white birch tree.

100. **Pinicola enucleator leucura.** PINE GROSBEAK.— Very common here during the winter only, when they may be seen in large flocks feeding on poplar buds.

101. **Carpodacus purpureus.** PURPLE FINCH.— Very common. These birds do a great deal of singing while on the wing.

102. **Loxia leucoptera.** WHITE-WINGED CROSSBILL.— Very rare; seen but once, in edge of a deep spruce swamp.

103. **Leucosticte tephrocotis.** ROSY FINCH.— Rare; seen only during the winter, usually in company with Pine Grosbeaks.

104. **Acanthis linaria.** REDPOLL.— Very numerous during the late fall, winter, and early spring.

105. **Astragalinus tristis.** GOLDFINCH.— Very numerous during the

summer of 1906, but somewhat scarce during the summer of 1907; since then they have been very rare.

106. **Spinus pinus.** PINE SISKIN.— Very common. These birds remain in flocks even while nesting; no less than six pairs are almost continually around the house. When I first noticed them carrying nesting material they picked out fine rootlets from the garden; then, about a week later, they carried away numerous feathers and mouthfuls of hair. I watched their flight but could not locate their nests as the woods here are extremely dense.

107. **Plectrophenax nivalis.** SNOWBUNTING.— Very numerous in the fall, winter, and early spring; always seen in large flocks, generally in the open fields.

108. **Calcarius lapponicus.** LAPLAND LONGSPUR.— Quite common during spring and fall. I have no knowledge of their breeding here.

109. **Pocœcetes gramineus confinis.** WESTERN VESPER SPARROW.— Very common in the open woodlands and clearings.

110. **Passerculus sandwichensis alaudinus.** WESTERN SAVANNAH SPARROW.— One of our most common sparrows, frequenting the more open districts.

111. **Ammodramus nelsoni.** NELSON'S SPARROW.— Only fairly common, frequenting the low marshy hay meadows.

112. **Zonotrichia leucophrys.** WHITE-CROWNED SPARROW.— Common only during spring and fall migration. I do not know whether it nests in this locality.

113. **Zonotrichia albicollis.** WHITE-THROATED SPARROW.— This is one of our most common sparrows, nesting in the deep woods as well as in the more open districts. Its nest is located either in a tangle of brush or near some fallen tree. Their most beautiful song, to me, is a sweet whistling call of *Oh see-me me me me me*; sometimes only *Oh see me*, and again *Oh see.*

114. **Spizella monticola ochracea.** WESTERN TREE SPARROW.— Very numerous here during spring and fall migration but to my knowledge it does not breed near.

115. **Spizella passerina.** CHIPPING SPARROW.— Quite common, especially in the vicinity of evergreens.

116. **Spizella pallida.** CLAY-COLORED SPARROW.— One of our most numerous sparrows, preferring the more brushy deciduous undergrowth where it places its nest, either on the ground or near it in some low bush.

117. **Junco hyemalis.** SLATE-COLORED JUNCO.— Very numerous. Prefers the mossy swamps in which to build its nest, although I have found it nesting within fifty feet of the house under the edge of an artificial bank. Two broods are reared each year.

118. **Melospiza melodia.** SONG SPARROW.— Very common along the more open streams and open swampy lands.

119. **Melospiza georgiana.** SWAMP SPARROW.— Fairly common in the wet hay sloughs and along wet and marshy runs.

120. **Passerella iliaca.** FOX SPARROW.— Very common, and one of our sweetest, if not the sweetest singer of the whole sparrow family. They seem to prefer the wooded districts where there is an abundance of thick deciduous undergrowth.

121. **Passer domesticus.** ENGLISH SPARROW.— When I saw the city of Edmonton for the first time (in April, 1906) there were but few of these birds to be seen anywhere, but now (summer, 1909) they number thousands. They are driving away such birds as the House Wren, Mountain Bluebirds, Juncos, White-throated Sparrows, etc., which used to nest in abundance in the streets and in the back yard of many houses.

122. **Zamelodia ludoviciana.** ROSE-BREASTED GROSBEAK.— Very common, especially in the deep woods and partially open woodlands. Less common in the more open sections.

123. **Piranga ludoviciana.** WESTERN TANAGER.— Very rare; have seen it but a few times in this locality.

124. **Petrochelidon lunifrons.** CLIFF SWALLOW.— Very abundant during the summer of 1908; over one hundred nests were built on the end of one small barn. But during the summer of 1909 they were very scarce, the reason for which is not evident.

125. **Hirundo erythrogastra.** BARN SWALLOW.— A very common summer visitant.

126. **Iridoprocne bicolor.** TREE SWALLOW.— Nowhere abundant but nearly everywhere common.

127. **Riparia riparia.** BANK SWALLOW.— Very rare in this immediate locality but quite common along the Saskatchewan River about thirty miles distant.

128. **Bombycilla garrula.** BOHEMIAN WAXWING.— Very common during the spring and fall, but I do not know of their nesting in this locality.

129. **Bombycilla cedrorum.** CEDAR WAXWING.— Very common. Nesting usually in low willow bushes, generally near water. I have seen their nests built only a few inches above the water, in a willow projecting out over a small stream.

130. **Lanius borealis.** NORTHERN SHRIKE.— Very rare; seen but a few times. I do not know of their nesting near here.

131. **Vireosylva olivacea.** RED-EYED VIREO.— Very common. I do not believe there were less than ten pairs to every quarter section in the wooded districts.

132. **Vireosylva philadelphica.** PHILADELPHIA VIREO.— I consider this bird very common although not as common as the Red-eye. They breed in this locality but I have never located their nests.

133. **Vireosylva gilva swainsoni.** WESTERN WARBLING VIREO.— Only fairly common. A nest was found in a birch tree, up about thirty-five feet, near a running stream.

134. **Mniotilta varia.** BLACK AND WHITE WARBLER.— Very rare, having been seen only in two different years. I do not know as to their breeding here.

135. **Vermivora peregrina.** TENNESSEE WARBLER.— Nowhere common, although a few pairs nest in the immediate vicinity.

136. **Dendroica æstiva.** YELLOW WARBLER.— Quite common, nesting in low bushes and small birch trees.

137. **Dendroica coronata.** MYRTLE WARBLER.— Quite common during spring and fall, but I have not found them nesting near here.

138. **Dendroica maculosa.** MAGNOLIA WARBLER.— Very common during spring and fall migrations, but I have not found them nesting.

139. **Dendroica striata.** BLACK-POLL WARBLER.— Very rare; has been seen only a few times.

140. **Seiurus aurocapillus.** OVEN-BIRD.— Very numerous. I would estimate that there were at least eight pairs to the quarter section in the deep woods, where they build their nests.

141. **Seiurus noveboracensis notabalis.** GRINNELL WATER-THRUSH.— Quite numerous during the spring migration and one has been singing in my back yard ever since he arrived last spring. I do not know as to their nesting but should not imagine they would spend the summer here and not nest.

142. **Geothlypis tolmiei.** MACGILLIVRAY'S WARBLER.— Last year I was of the opinion that this species was very rare, but this year they have been very common. I have found at least six pairs within a radius of two hundred yards. They nest in the low deciduous underbrush, placing their nests within a few inches of the ground.

143. **Geothlypis trichas.** MARYLAND YELLOW-THROAT.— Very common along the wet, marshy sloughs and hay meadows, where it usually nests.

144. **Setophaga ruticilla.** REDSTART.— Very common. Nesting in low bushes and trees. I found one nest which after having been completed was entirely covered on the outside with down taken from the deserted nest of a domestic goose.

145. **Anthus pensilvanicus.** PIPIT.— Quite common in the spring when they are seen in the open portions of the country in large flocks.

146. **Dumetella carolinensis.** CATBIRD.— Rare. I have seen less than a half-dozen pairs in four years, and but one nest.

147. **Troglodytes aëdon.** HOUSE WREN.— Very common, rearing two broods.

148. **Sitta canadensis.** RED-BREASTED NUTHATCH.— Very rare. Seen only in deep woods where I presume it nests.

149. **Penthestes atricapillus.** CHICKADEE.— Very common, nesting generally in holes excavated by itself, but sometimes appropriating the deserted nest of some woodpecker.

150. **Penthestes hudsonicus.** HUDSONIAN CHICKADEE.— Very rare; seen only a few times, in deep tamarack swamps. I presume they nest here.

151. **Regulus satrapa.** GOLDEN-CROWNED KINGLET.— Very rare; seen but a few times.

152. **Hylocichla fuscescens salicicola.** WILLOW THRUSH.— Very common.

153. **Hylocichla aliciæ.** GRAY-CHEEKED THRUSH.— Very rare; seen only during migration and then very seldom.

154. **Hylocichla ustulata swainsoni.** OLIVE-BACKED THRUSH.— The most common of the thrushes. It places its nest from two to twenty-five feet above ground.

155. **Hylocichla guttata pallasi.** HERMIT THRUSH. — Very rare. Seen only during migration.

156. **Planesticus migratorius.** ROBIN.— Very common. This bird nests almost as abundantly in the deep woods as in the more open and settled portions. Two broods are usually raised.

157. **Sialia currucoides.** MOUNTAIN BLUEBIRD.— Very common in the open portions of the country but never seen in the heavily wooded sections. Two broods are raised.

THE BIRDS OF COLORADO — THIRD SUPPLEMENT.

BY WELLS W. COOKE.

THE original 'Birds of Colorado' was published in 1897 as Bulletin No. 37 of the Colorado State Agricultural Experiment Station. It was followed a year later by the first supplement as Bulletin No. 44 of the same institution, and the second supplement was published in 1900 as Bulletin No. 56. The original bulletin enumerated 363 species as occurring in Colorado, of which 230 were known to breed in the State. The next year the total was increased to 374 and the breeders to 236. The year 1900 showed 387 species known to occur in the State, with 243 breeders.

The present publication withdraws 12 of these 387 as having been admitted to the State list on insufficient evidence or as not now considered valid forms. At the same time it recognizes 22 additional species as entitled to a place in the State list. Thus the present known avifauna of Colorado totals 397 species — a number probably exceeded by only two States, California and Texas. It is interesting to note that of these 22 additions, 9 had been mentioned in the second supplement as likely to occur in Colorado, while the other 13 are unexpected additions or arise from the recognition of subspecific forms. The number of species now known to breed in

Colorado is 248. Among the species dropped from the State, the following five had been counted among the breeders: *Phalænoptilus nuttalli nitidus, Astragalinus psaltria arizonæ, Spizella passerina, Dendroica æstiva sonorana,* and *Sitta carolinensis.* The list of breeders has had ten additions: *Marila americana, Marila vallisneria, Marila affinis, Pediœcetes phasianellus columbianus, Dryobates villosus, Cyanocitta cristata, Agelaius phœniceus neutralis, Icterus spurius, Peucæa cassini,* and *Vireo belli.*

The Bibliography of Colorado Ornithology.

The original bulletin contained the titles of 182 articles on Colorado birds, to which were added 15 in the first supplement and 28 in the second — a total of 225 titles. Publications on Colorado ornithology have become increasingly abundant during the past few years and the following pages mention 114 titles, nearly all of which have appeared within the last nine years, *i. e.,* half as many articles have been written about Colorado birds in the last nine years as in the preceding seventy years. The statement was made in the original bulletin, that 23 titles had been omitted as being only incidental references to Colorado birds. This number can now be increased by 62 additional articles that make some statements or contain some records of Colorado birds, but are not considered of enough importance to be listed here individually.

The bibliography of Colorado ornithology stands at present therefore as follows.

More important titles to 1900 . .	225
Additional titles 1900–1909 . .	118
Less important titles	91
Total	434

The following list contains in chronological order, the more extended and important articles on the birds of Colorado that have been published since 1900, and also a few issued previously that were not noted in 'Birds of Colorado.'

Abert, J. W. Report of the expedition led by Lieutenant Abert on the upper Arkansas and through the country of the Camanche Indians in the fall of the year 1845. Journal of Lieutenant J. W. Abert, from Bent's Fort to St. Louis in 1845. 29th. Cong., First Session, Sen. Doc. VIII, No. 438, 1846, 1–75.

Notes on several species of birds seen on a journey from the mouth of the Purgatory to Raton Pass.

Abert, J. W. Notes of a military reconnoissance from Fort Leavenworth in Missouri to San Diego, in California, including part of the Arkansas, Del Norte and Gila Rivers, by Lieut. Col. W. H. Emory. Appendix No. 6. Notes of Lieut. J. W. Abert. 30th Cong., First Session, Exec. Doc. No. 41, 1848, 386–546.

Contains a list of birds found in the vicinity of Bent's Fort, and additional notes on those seen between Bent's Fort and Raton Pass over nearly the same road as that travelled the previous year. Had these two reports by Lieut. Abert been available when the original 'Birds of Colorado' was written, there would have been several changes in the statement of who first recorded each species in Colorado. Abert's two reports together contain the first records for the State of thirteen species.

Allen, J. A. Ornithological notes from the West, II, Notes on the birds of Colorado. American Naturalist, VI, 1872, 342–351, 404.

A narrative account of the birds seen on the trip, containing the same notes that were published more at length in Bull. Mus. Comp. Zoöl., III, 1872, 113–183.

Anthony, A. W. Secondary migration of birds. Zoe, I, 1891, 379–381.

Records the fact that the White-crowned Sparrow in southwestern Colorado, raises its two broods at different altitudes.

Breninger, G. F. American and Mexican Crossbills. Nidiologist, I, 1894, 99–101.

Extended notes on the nest and nesting habits in El Paso County.

Chamberlain, C. The Water Ouzel at home. Nidiologist, I, 1894, 163–164.

Nesting habits as observed near Golden.

Dawson, W. Some western horizons. No. II. Wilson Bulletin, VI, 1899, 49–50.

A list of the birds seen at Julesburg. Contains the first record for the State of the Piping Plover.

Burnett, W. L. The Indigo Bunting in Colorado. Condor, II, 1900, 90.

A party of eight or ten at Fort Collins, the spring of 1900.

Dille, F. M. Nesting of the Eastern Bluebird at Denver, Colorado. Condor, II, 1900, 88.

A pair nested there in 1899.

Felger, A. H. The Mexican Cormorant in Colorado. Auk, XVIII, 1901, 189.

The first record for the State.

Osgood, W. H. New subspecies of North American birds. Auk, XVIII, 1901, 179–185.

Original description of *Lagopus leucurus altipetens*, with type-locality in Colorado. It has since been ascertained that this name is a synonym of *Lagopus leucurus*.

Burnett, W. L. The Rose-breasted Grosbeak in Colorado. Condor, IV, 1902, 94.

A pair near Loveland, June 1, 1902.

Dille, F. M. Western Blue Grosbeak in northern Colorado. Condor, IV, 1902, 94.

One at Altona — the most northern record for the State.

Felger, A. H. Colorado bird notes. Auk, XIX, 1902, 294.

New records of breeding and extensions of known range for several species.

Oberholser, H. C. A review of the Larks of the genus *Otocoris*. Proc. U. S. Nat. Mus., XXIV, 1902, 801–884.

Contains the first record for Colorado of *Otocoris alpestris praticola*.

Dille, F. M. Nesting dates for birds in the Denver District, Colorado. Condor, V, 1903, 73–74.

An extended list, giving the average dates for full sets of the first laying.

Henderson, J. Preliminary list of birds of Boulder County, Colorado. University of Colorado Studies, I, 1903, 233–237.

An unannotated list of 160 species.

Smith, H. G. Bell's Vireo (*Vireo bellii*) in Colorado. Auk, XX, 1903, 438.

The first record for the State.

Burnett, L. E. Whippoorwill (*Antrostomus vociferus*), a new bird for Colorado. Auk, XXI, 1904, 278–279.

One at Fort Collins, about September 14, 1903.

Dille, F. M. Eggs of Flammulated Screech Owl and Western Evening Grosbeak, taken in Estes Park, Colorado. Condor, VI, 1904, 50.

The eggs were taken in June, 1903, and for the Grosbeak are the first reported from the State.

Dille, F. M. A Sage Sparrow in Boulder County, Colorado. Condor, VI, 1904, 79.

This is the first record for the State, east of the mountains.

Henderson, J. Additional list of Boulder County birds, with comments thereon. University of Colorado Studies, II, 1904, 107–112.

Adds 46 species to his list of the previous year.

Warren, E. R. A Sandhill Crane's nest. Condor, VI, 1904, 39–40.

Eggs found June 5, 1903, in Gunnison County.

Henderson, J. Colorado notes. Auk, XXII, 1905, 421–422.

First record for the State of the Wood Thrush.

Howell, A. H. Scott's Sparrow in Colorado. Auk, XXII, 1905, 210.

The first record for the State.

Smith, H. G. The Blue Jay and other eastern birds at Wray, Yuma County, Colorado. Auk, XXII, 1905, 81–82.

The record of the Blue Jay is the first for the State.

Warren, E. R. Cassin's Sparrow in Colorado. Auk, XXII, 1905, 416.

First record for the State.

Ferrill, W. C. Biennial Report of the State Historical and Natural History Society of Colorado, December 1, 1904–November 30, 1906. Denver, 1906, 1–19.

Contains, on page 14, advance notice of new records for Colorado birds, given more in detail by H. G. Smith, Auk, XXV, 1908, 184–191.

Henderson, J. With the birds in northeastern Colorado. Wilson Bulletin XIII, 1906, 105–110.

Short account of the birds seen on a wagon trip in Weld County.

Warren, E. R. A collecting trip to southeastern Colorado. Condor, VIII, 1906, 18–24.

Extended field notes on 84 species, observed principally in Baca County.

Warren, E. R. *Contopus virens* in Colorado. Condor, VIII, 1906, 130.

The first record for the State.

Felger, A. H. Ross's Snow Goose in Colorado. Auk, XXIV, 1907, 211–212.

First record for the State.

Gilman, M. F. Magpies on the La Plata. Condor, IX, 1907, 9–12.

Extended account of the nesting habits.

Gilman, M. F. Migration and nesting of the Sage Thrasher. Condor, IX, 1907, 42–44.

As observed in southwestern Colorado.

Gilman, M. F. Some birds of southwest Colorado. Condor, IX, 1907, 152–158, 194–195.

Extended field notes on 120 species observed in the vicinity of Fort Lewis, La Plata County.

Henderson, J. Colorado notes. Condor, IX, 1907, 198.

New records for several of the rarer species of Colorado birds.

Hersey, L. J. and **Rockwell, R. B.** A new breeding bird for Colorado; the Cassin Sparrow (*Peucæa cassini*) nesting near Denver. Condor, IX, 1907, 191–194.

The first breeding record of the bird for the State.

Oberholser, H. C. A new *Agelaius* from Canada. Auk, XXIV, 1907, 332–336.

Describes a new form as *Agelaius phœniceus arctolegus*, and records a specimen from Colorado. This subspecies has not as yet been accepted by the A. O. U. Committee.

Rockwell, R. B. The Woodhouse Jay in western Colorado. Condor, IX, 1907, 81–84.

Rockwell, R. B. Some Colorado notes on the Rocky Mountain Screech Owl. Condor, IX, 1907, 140–145.

Warren, E. R. Photographing Magpies. Condor, IX, 1907, 5–9.

Reproductions of several photographs taken at Crested Butte.

Warren, E. R. An interesting occurrence of the Canyon Wren. Condor, IX, 1907, 111.

Near Cheyenne Wells — the most eastern record for the State.

Burnett, W. L. Another Cañon Wren record for Colorado. Auk, XXV, 1908, 87. One at Longmont — the most northeastern record for the State.

Rockwell, R. B. Nesting of the Western Horned Owl in Colorado. Condor, X, 1908, 14–17.

Rockwell, R. B. The Red-winged Blackbirds of Colorado. Condor, X, 1908, 93.

First record for the State of *Agelaius phœniceus neutralis.*

Rockwell, R. B. An annotated list of the birds of Mesa County, Colorado. Condor, X, 1908, 152–180.

Notes on 154 species.

Sclater, W. L. The winter birds of Colorado. Ibis, 1908, 443–450.

Briefly annotated list of 78 species.

Smith, H. G. Random notes on the distribution of some Colorado birds, with additions to the State avifauna. Auk, XXV, 1908, 164–191.

Contains the first records for Colorado of *Dryobates villosus villosus, Junco hyemalis oreganus* and *Vireo vicinior,* and field notes on 32 other species, with many extensions of known range.

Warren, E. R. Northwestern Colorado bird notes. Condor, X, 1908, 18–26.

Field notes on 93 species seen during a five month's wagon trip.

Cary, M. New records and important range extensions of Colorado birds. Auk, XXVI, 1909, 180–185.

Adds *Cistothorus stellaris* to the State list and extends the known range of more than thirty species.

Cooke, W. W. Some new birds for Colorado. Auk, XXVI, 1909, 314.

Adds four species to the State list.

Dille, F. M. Notes of occurrence and nesting of certain species additional to the 'Birds of Colorado.' Auk, XXVI, 1909, 86–88.

Field notes on 11 species.

Felger, A. H. Colorado notes. Auk, XXVI, 1909, 85–86.

Field notes on three species.

Felger, A. H. Annotated list of the water birds of Weld, Morgan and Adams counties, Colorado, south to the first sectional line below the fortieth parallel. Auk, XXVI, 1909, 272–291.

Enumerates 79 species and adds the records of 29 others from neighboring parts of the State.

Frey, J. W. Random bird notes from Chaffee County, Colorado. Condor, XI, 1909, 70.

Field notes on 21 species.

Henderson, J. An annotated list of the birds of Boulder County, Colorado. University of Colorado Studies, VI, 1909, 219–242.

A briefly annotated list of 216 species, with a bibliography.

Hersey, L. J. and **Rockwell, R. B.** An annotated list of the birds of the Barr Lake District, Adams County, Colorado. Condor, XI, 1909, 109–122.

Enumerates 206 species taken within an area only fifteen miles in diameter.

Rockwell, R. B. The history of Colorado ornithology. Condor, XI, 1909, 24–32.

An account of the collectors who have worked in the State and the sections covered by their explorations.

Rockwell, R. B. The use of Magpies' nests by other birds. Condor, IX, 1909, 90–92.

Warren, E. R. Notes on the birds of southwestern Montrose County, Colorado. Condor, XI, 1909, 11–17.

Field notes on 114 species, with many extensions of the previously known range.

Warren, E. R. Some interesting Colorado records. Condor, XI, 1909, 33.

Notes on three species.

Less extended notes on Colorado birds will be found in the following articles.

Trippe, American Naturalist, VIII, 1874, 429–430.
Chambers, American Naturalist, X, 1876, 373.
Packard, American Naturalist, XII, 1878, 54.
Stone, Ornithologist and Oölogist, VI, 1881, 45–46, 67.
Smith, Ornithologist and Oölogist, IX, 1884, 76.
Anthony, Nidologist, II, 1895, 66–67.
Taylor, Nidologist, IV, 1896, 6.
Lowe, Nidologist, IV, 1897, 70.
Burnett, Condor, II, 1900, 89.
Jones, Wilson Bulletin, No. 33, 1900, 12.
Burnett, Condor, III, 1901, 114.
Henderson, Wilson Bulletin, VIII, 1901, 45–46.
Lowe, Auk, XVIII, 1901, 276.
Fisher, Condor, IV, 1902, 70.
Smith, Auk, XIX, 1902, 290.
Burnett, Condor, V, 1903, 156.
Dille, Condor, V, 1903, 79.
Felger, Auk, XX, 1903, 65 and 70.
Henderson, Wilson Bulletin, X, 1903, 74–75.
Warren, Wilson Bulletin, X, 1903, 87–91.
Bergtold, Auk, XXI, 1904, 78.
Henderson, Wilson Bulletin, XI, 1904, 27 and 92.
Henderson, Auk, XXI, 1904, 486.
Bailey, Condor, VII, 1905, 112.
Bishop, Condor, VII, 1905, 141–143.
Felger, Auk, XXII, 1905, 421.
Henderson, Auk, XXII, 1905, 82 and 315–316.
Hopkins, Auk, XXIII, 1906, 461.
Felger, Condor, IX, 1907, 110.
Felger, Auk, XXIV, 1907, 342.

Henderson, Condor, IX, 1907, 162.
Henderson, Auk, XXIV, 1907, 440–442.
Knaebel, Auk, XXIV, 1907, 101.
Rockwell, Condor, X, 1908, 182.
Test, Auk. XXV, 1908, 226.
Bergtold, Auk, XXVI, 1909, 79 and 196–198.
Cary, Auk, XXVI, 1909, 312.
Felger, Condor, XI, 1909, 68–69.
Felger, Auk, XXVI, 1909, 191.
Richards, Condor, XI, 1909, 101.
Rockwell, Condor, XI, 1909, 33.
Warren, Auk, XXVI, 1909, 311–312.

The History of Colorado Ornithology.

The following additions have been made to the list of Colorado birds since the second appendix was published in 1900.

Dawson, Wilson Bulletin, VI, 1899, 50. *Ægialitis meloda* taken at Julesburg.

Felger, Auk, XVIII, 1901, 189. *Phalacrocorax vigua mexicanus* taken near Denver.

Oberholser, Proc. U. S. Nat. Mus., XXIV, 1902, 820–828. *Otocoris alpestris praticola* taken near Denver.

Keyser, Birds of the Rockies, 1902, 315. *Phalaropus fulicarius* taken by Preble at Loveland.

Smith, Auk, XX, 1903, 438. *Vireo belli* taken near Denver.

Burnett, Auk, XXI, 1904, 278. *Antrostomus vociferus* taken at Fort Collins.

Smith, Auk, XXII, 1905, 75. *Cyanocitta cristata* at Wray.

Howell, Auk, XXII, 1905, 210. *Aimophila ruficeps scotti* taken at Trinidad.

Warren, Auk, XXII, 1905, 416. *Peucæa cassini* taken near Springfield.

Henderson, Auk, XXII, 1905, 421. *Hylocichla mustelina* at Yuma.

Warren, Condor, VIII, 1906, 130. *Myiochanes virens* taken near Springfield.

Felger, Auk, XXIV, 1907, 211. *Chen rossi* taken near Longmont.

Rockwell, Condor, X, 1908, 93. *Agelaius phœniceus neutralis* taken near Denver.

Smith, Auk, XXV, 1908, 185–189. *Dryobates villosus* taken near Wray; *Junco hyemalis oreganus* taken near Denver; *Vireo vicinior* taken at Lamar.

Cary, Auk, XXVI, 1909, 180–185. *Cistothorus stellaris* taken in the San Luis Valley, and *Pediœcetes phasianellus columbianus* in western Colorado.

Cooke, Auk, XXVI, 1909, 314. *Sterna hirundo* by Osterhout at New Windsor; *Butorides virescens* by Preble at Loveland; *Spizella pusilla arenacea* and *Vermivora chrysoptera* by Patten at Yuma.

Recapitulation.

Total species credited to Colorado in 1900					387
To be withdrawn from this number					12
Correct Colorado list in 1900					375
Added since then.					
1899. W. L. Dawson	1	1905. E. R. Warren	1		
1901. A. H. Felger	1	1905. J. Henderson	1		
1902. H. C. Oberholser	1	1906. E. R. Warren	1		
1902. L. S. Keyser	1	1907. A. H. Felger	1		
1903. H. G. Simth	1	1908. R. B. Rockwell	1		
1904. L. E. Burnett	1	1908. H. G. Smith	3		
1905. H. G. Smith	1	1909. M. Cary	2		
1905. A. H. Howell	1	1909. W. W. Cooke	4		22
Total Colorado list, 1909					397

The Birds of Colorado.

Colymbus auritus. HORNED GREBE.— Two near Barr, May 5, 1906 (Hersey and Rockwell).

Larus californicus. CALIFORNIA GULL.— One seen in 1905 at Coventry (Warren).

Larus franklini. FRANKLIN'S GULL.— One October 17, 1907, at Barr (Hersey and Rockwell).

Xema sabini. SABINE'S GULL.— A flock of six September 15, 1907, near Boulder (Henderson). Four specimens taken September 13–October 31, 1908 at Barr (Hersey and Rockwell).

Sterna forsteri. FORSTER'S TERN.— Twelve pairs were found breeding at Barr, May 19, 1900 (Felger).

Sterna hirundo. COMMON TERN.— The second supplement prophecied that this species would sometime be added to the list of Colorado birds, since it is a regular visitant to Kansas and Nebraska and has been taken at Cheyenne, Wyo. This prophecy is now fulfilled by the capture of a specimen, May 14, 1908, at New Windsor by G. E. Osterhout. The bird was sent to the Biological Survey for identification.

Phalacrocorax vigua mexicanus. MEXICAN CORMORANT.— The first record for Colorado is a specimen taken October 15, 1899, at Smith's Lake near Denver (Felger).

Mergus serrator. RED-BREASTED MERGANSER.— A mounted specimen was seen at La Veta (Cary), and the catalogue of the National Museum records a specimen taken at Fort Massachusetts [= Fort Garland]. These are the second and third records west of the front range.

Marila americana. REDHEAD.— This species can now be added to the list of the breeding birds of Colorado as it is known to have nested at Barr Lake, Adams County (Hersey and Rockwell).

Marila vallisneria. CANVAS-BACK.— This also joins the breeding birds, since eggs were found July 4, 1900, at Barr Lake (Felger).

Marila affinis. LESSER SCAUP DUCK.— A few breed at Barr Lake (Hersey and Rockwell). A new breeding record for the State.

Marila collaris. RING-NECKED DUCK.— One taken at Coventry in April, 1906 (Warren). This is the first record west of the main range.

Harelda hyemalis. OLD-SQUAW.— One at Longmont, about November 20, 1903 (Smith). Five specimens at different times taken in the vicinity of Denver (Felger).

Oidemia deglandi. WHITE-WINGED SCOTER.— Several additional records: near Longmont, October 20, 1901 (Henderson); Loveland, October 11, 1903 (Bergtold); LaSalle, October 24, 1904 (Smith); near Denver, six or more on September 14, 1907 (Henderson).

Chen rossi. ROSS'S GOOSE.— An addition to Colorado birds. One December 23, 1906 near Longmont (Felger).

Plegadis guarauna. WHITE-FACED GLOSSY IBIS.— Additional records are: Barr, May 25–31, 1907 and April 4–June 21, 1908 (Hersey and Rockwell); two additional specimens near Denver (Felger); one near Norwood, Montrose County, September 21, 1907 (Warren).

Mycteria americana. WOOD IBIS. Two August 30, 1902 near Denver (Felger).

Herodias egretta. AMERICAN EGRET.— One seen near Denver April 26 and 27, 1907 (Rockwell). One specimen taken at Barr (Hersey and Rockwell).

Egretta candidissima. SNOWY HERON.— Several more records: Tabequache Park, April 15, 1906 (Warren); Naturita, one, 1908 (Warren); near Kremmling, May 17, 1907 (Warren); LaVeta (Cary); near White River P. O., 1905 (Cary); Springfield, two reported (Warren); Salida, May 22, 1908 (Frey); near Denver, May 11, 1907; May 9–10, 1908; June 13, 19, 28, 1908 (Rockwell); La Salle, Salida and Denver (Felger). Fort Collins and White River P. O. seem to be the most northern localities for the species in Colorado.

Butorides virescens. GREEN HERON.— Added to the Colorado list by Edward A. Preble of the Biological Survey who saw one at Loveland July 23, 1895.

Nyctanassa violacea. YELLOW-CROWNED NIGHT HERON.— A second record for the State is that of a party of five seen May 1, 1908, at Salida (Warren).

Grus mexicana. SANDHILL CRANE.— A recent record of nesting is a set of eggs found June 5, 1903, in Gunnison County at 8000 feet (Warren).

Rallus virginianus. VIRGINIA RAIL.— Winters at Barr (Hersey and Rockwell).

Porzana carolina. CAROLINA RAIL.— One found dead on the surface of the ice near the terminal moraine of Arapahoe Glacier, September 1903, at 12,000 feet altitude (Henderson).

Fulica americana. COOT. A few winter at Barr (Hersey and Rockwell).

Phalaropus fulicarius. RED PHALAROPE.— This is the second species added by Edward A. Preble to the State list. He captured a specimen

July 25, 1895, at Loveland. The finding of these two species by Mr. Preble is one of the strange circumstances connected with Colorado ornithology. W. G. Smith and Wm. Osburn lived at Loveland and collected there assiduously for years. Mr. Preble visited there one week and saw two species not detected by the other collectors.

Gallinago delicata. WILSON'S SNIPE.— Several nests and sets of eggs found each of the past five years on the plains near Boulder (Dille).

Ereunetes mauri. WESTERN SANDPIPER.— Not common migrant at Barr (Hersey and Rockwell).

Calidris leucophæa. SANDERLING.— One May 31, 1908, and several the fall of 1908 at Barr (Hersey and Rockwell).

Helodromas solitarius cinnamomeus. WESTERN SOLITARY SANDPIPER.— The early publications on Colorado ornithology included this species among the breeding birds of the State, and the same reference has been continued by subsequent writers. As neither eggs nor young birds have ever been reported from the State the assumption of breeding rests on the presence of the bird in pairs during the summer season. Late investigations have shown that many non-breeding Solitary Sandpipers remain through the summer far south of the breeding grounds, and also that the southward migration of breeding birds begins soon after the first of July. In the light of these facts it must be considered, that though the species probably does breed in Colorado, yet the actual breeding is not yet proven.

Bartramia longicauda. UPLAND PLOVER.— Several heard at night in migration in northwestern Colorado August 6–14, 1905. One seen August 9, 1907, at the head of Smith Fork in the West Elk Mountains, Gunnison County, was at an unusually high altitude — 7000 feet, while the record is the most southwestern for the State (Cary). Eggs June 28, 1907, near Barr Lake (Hersey and Rockwell).

Charadrius dominicus. GOLDEN PLOVER.— Additional records are: one at Newcastle, October 5, 1902 (Bishop); one near Denver, May 17, 1907 (Rockwell).

Ægialitis semipalmata. SEMIPALMATED PLOVER.— One April 27, 1907, near Denver (Rockwell).

Ægialitis meloda. PIPING PLOVER.— Added to the Colorado list by the record of one taken May 16–17, 1899, at Julesburg (Dawson).

Podasocys montanus. MOUNTAIN PLOVER.— The most western record for the State seems to be that of a specimen taken by Henshaw June 10, 1873, near the site of the present town of Del Norte.

Colinus virginianus. BOB-WHITE.— Sixty years ago Lieut. J. W. Abert spent a summer at Bent's Fort on the Arkansas and he says that quail like those of the eastern United States were then to be found in that neighborhood. There can be no doubt that these birds were native.

Arenaria interpres morinella. RUDDY TURNSTONE.— Three at Barr, September 9, 1907 (Hersey and Rockwell).

Callipepla squamata. SCALED QUAIL.— Common in Baca County east nearly to the Kansas line and north to Lamar. It is claimed that the birds

have been working eastward and that they did not reach eastern Baca County until about fourteen years ago (Warren). Two near Mattison, Elbert County, May 4, 1909 (Cary).

Lophortyx californicus. CALIFORNIA QUAIL.— Introduced at Grand Junction and has spread up the Gunnison Valley to Hotchkiss where it was abundant in August, 1907. Introduced at Mancos and spreading in Montezuma County. One seen near Dolores June 25, 1907 (Cary).

Tympanuchus americanus. PRAIRIE CHICKEN.— Gradually extending westward in eastern Colorado as the native sod gives place to farms and wheatfields. It now breeds at least as far west as Yuma, Wray County (Patten). Nested in 1907 and 1908 near Barr (Hersey and Rockwell). This is the most western record in the United States.

[**Tympanuchus pallidicinctus.** LESSER PRAIRIE CHICKEN.— A few Prairie Chickens are reported as still present in southeastern Baca County. These should be the above form, but no specimens have been secured to settle the matter.]

Pediœcetes phasianellus campestris. PRAIRIE SHARP-TAILED GROUSE.— As stated below, the form of western Colorado is *columbianus.* The bird of the plains of Colorado has always been referred to *campestris* and for the present that is probably the best that can be done. The final settlement of the proper name for the Sharp-tail of northeastern Colorado may prove difficult, as *campestris* is probably now extinct in the State.

Pediœcetes phasianellus columbianus. COLUMBIAN SHARP-TAILED GROUSE.— It has at last been ascertained that this is the form which occurs in Colorado west of the main range. The species is known now to be present locally over much of western and southwestern Colorado south to McElmo Cañon, Montezuma County, and to Pagosa Springs, Archuleta County (Cary). A specimen taken February 12, 1907, at Castle Rock was sent to the Biological Survey for examination proves to be this form.

Meleagris gallopavo silvestris. WILD TURKEY.— As late as 1906 it was reported that a few Turkeys still inhabited southern Las Animas County (Warren). They are entered as the above form, but conclusive proof is still lacking that this form has ever occurred in Colorado. The records left by Say and Abert prove conclusively that in their day, the range of the Turkey extended without a break from Oklahoma, up the Arkansas and the Purgatory to Raton Pass and thence down the Canadian to Oklahoma. Under those conditions it is fair to presume that the birds of southeastern Colorado were the same form as those farther east.

Meleagris gallopavo merriami. MERRIAM'S TURKEY.— Almost if not quite extinct now in Colorado. The latest reports come from near Pagosa Springs and Mancos (Cary).

Zenaidura macroura carolinensis. MOURNING DOVE.— Wintered at Navajo Springs, La Plata County (Gilmore). One seen at Beulah January 4, 1904, and a few remained there the winter of 1905–6 (Jones).

Aluco pratincola. BARN OWL.— One near Mancos and one near Fort Lewis (Gilmore). One at Denver, March 29, 1907, and one at Holly, May 24, 1907 (Smith).

[**Strix varia.** BARRED OWL.— The known range of this species has been carried much further west by a specimen taken March, 1905, at Bear Lodge, Crook County, Wyo., and sent to the Biological Survey for identification.]

Strix occidentalis. SPOTTED OWL.— Two in spring near Fort Lewis (Gilman).

Otus asio maxwelliæ. ROCKY MOUNTAIN SCREECH OWL.— A pair nested in 1906 on Dry Willow Creek, Yuma County; one of the birds taken June 9, 1906, was sent to the Biological Survey for identification (Smith). Thus this form occurs not only in the mountains but far out on the plains, almost to the Kansas line.

Otus flammeola. FLAMMULATED SCREECH OWL.— One specimen, near Fort Lewis (Gilman). A mounted specimen at Glenwood Springs, presumably taken in the State (Cary). A set of eggs is recorded in the catalogue of the egg collection of the National Museum as taken in Estes Park June 21, 1891. Two sets of eggs were taken at the same place in June, 1903 (Dille).

[**Bubo virginianus arcticus.** ARCTIC HORNED OWL.— This form has been credited to Colorado by several writers; since the great variations in color became known of the Western Horned Owl, *pallescens*, doubt has arisen as to whether the true Arctic Horned Owl ever occurs in the State. For the present at least it better be dropped from the Colorado list.]

Geococcyx californianus. ROAD-RUNNER.— One at Los Animas August, 1907 (L. R. Cooke). The northeastern limit of the range in Colorado is a few miles south of Lamar (Cary). One, March 15, 1907, at Shawnee, on the Platte at 8125 feet altitude; another October 12, 1907, at Marshall Pass, about 10,000 feet altitude (Hersey). Both of these are much higher than the usual range of the species.

[**Coccyzus americanus.** -YELLOW-BILLED CUCKOO.— The whole of Colorado is within the known range of the western Yellow-billed Cuckoo, *occidentalis*. As the actual record on which the eastern bird was admitted can never be known, it seems best to drop it from the Colorado list.]

Coccyzus erythrophthalmus. BLACK-BILLED CUCKOO.— One May 21, 1904, at Wray (Smith). One at the same place May 22, 1909 (Cary).

Dryobates villosus. HAIRY WOODPECKER.— A pair were nesting June 9, 1906, at Dry Willow Creek, Yuma County; they were identified by the Biological Survey as intermediates but nearer the eastern bird, thus introducing this form to the Colorado fauna (Smith). Other and later specimens show that this is the form of the Arkansas Valley as far west as Fowler (Smith).

[**Dryobates pubescens.** DOWNY WOODPECKER.— Since no specimen of this form is known to have been taken in the State, it better be dropped from the list of Colorado birds. It is interesting in this connection to note

that a Downy Woodpecker taken at Holly in extreme eastern Colorado is *homorus*, the same as the bird of the mountains.]

Dryobates scalaris bairdi. TEXAS WOODPECKER.— A long extension of the known range to the eastward results from the finding of this species in Baca County; four were taken April 17, 1905, and one May 12, 1905, near Springfield (Warren). Several at Swink, October 29, 1908 (Smith).

Centurus carolinus. RED-BELLIED WOODPECKER.— Seen at Yuma, October 1, 2 and 3, 1906 (Patten).

Colaptes auratus luteus. NORTHERN FLICKER.— One, October 5, 1906, at Yuma (Patten). One, October 24, 1904, Hall Valley, Park County, at 10,000 feet (Felger).

Lieut. J. W. Abert states in his report that when he visited Colorado in 1846, he found the Flicker with yellow wings common all along the Arkansas River in Kansas and that they continued to be common westward in Colorado at least to the mouth of the Purgatory River. Abert ascended the Arkansas to the site of the present town of La Junta, and then went southwestward to Raton Pass. It was not until he was half way between La Junta and Trinidad that he saw the Red-shafted Flicker, and here both the yellow and the red forms were common. A great change has taken place in the distribution of these two forms during the sixty years that have elapsed since Abert's Colorado visit. Now the yellow-winged form is extinct in the whole Arkansas Valley of Colorado and the red-shafted form has extended its range eastward throughout this whole region and far into Kansas.

Antrostomus vociferus. WHIPPOORWILL.— The first record for Colorado is that of one taken September 14, 1903, at Fort Collins and sent to the Biological Survey for identification (Burnett).

Cypseloides niger borealis. BLACK SWIFT.— A female in the collection of Geo. B. Sennett is labeled as taken at Denver, June 26, 1884. This is the most northeastern record for the State.

Aëronautes melanoleucus. WHITE-THROATED SWIFT.— Found at Pawnee Buttes in northeastern Weld County (Henderson). Common breeder in Chimney Cañon near Sterling (Cary).

Selasphorus platycercus. BROAD-TAILED HUMMINGBIRD.— Hummingbirds have been seen at Springfield May 24, 1908 (Alexander) and at Yuma May 31, 1905, September 5, 1908, and October 3, 1908 (Patten). In each case the records probably belong to the above species, and these seem to be the first records of hummingbirds from the plains of eastern Colorado.

Selasphorus rufus. RUFOUS HUMMINGBIRD.— One, August 27, 1904, near Antonito (Bailey).

Stellula calliope. CALLIOPE HUMMINGBIRD.— The two previous records of this species for Colorado are each of single birds; it is surprising therefore that several should have been seen in one day August 27, 1904, at Antonito, by Vernon Bailey of the Biological Survey.

Tyrannus tyrannus. KINGBIRD.— Not uncommon during migration in northwestern Colorado. Steamboat Springs, Craig and Lay (Warren). Near Rifle, near Boggs Crossing, Meeker, and Edwards's Sheep Camp in Routt County (Cary). One was seen in June at Navajo Springs, Montezuma County (Gilman). This is apparently the most southwestern record in the United States.

Tyrannus verticalis. ARKANSAS KINGBIRD.— The average date of arrival at Yuma is May 6, and of departure September 16; the extremes are April 30, 1905, and September 23, 1904 (Patten). Breeds in Baca County (Warren) — the most southeastern breeding record in Colorado.

Myiarchus cinerascens. ASH-THROATED FLYCATCHER.— One in 1907 at Douglas Spring near Dotsero (Warren). A great extension eastward of the known range results from the capture of one May 25, 1905, at Gaume's Ranch, Baca County (Warren).

Myiochanes virens. WOOD PEWEE.— The one taken May 12, 1905, near Springfield, gives the first record for Colorado (Warren).

Otocoris alpestris leucolæma. DESERT HORNED LARK.— The statement is made in the original bulletin that "the literature of the Horned Larks in Colorado is more mixed than that of any other bird; *alpestris, cornuta, occidentalis* and *chrysolæma* have all been recorded for the State, but according to present ideas only *leucolæma* and *arenicola* really occur in Colorado." Changes in nomenclature during the past twelve years have made the matter still more complex. It has been found that *arenicola* is a synonym of *leucolæma* and must be dropped, while two new names *praticola* and *hoyti* have to be taken into consideration.

According to present ideas all the breeding birds and almost all of the winter birds, in spite of the wide variation in color, are referable to *leucolæma.*

[**Otocoris alpestris arenicola.** DESERT HORNED LARK.— This name is dropped from the Colorado list as being a synonym of *leucolæma.*]

Otocoris alpestris praticola. PRAIRIE HORNED LARK.— Accidental, once at Denver (Oberholser). First and only record for Colorado.

[**Otocoris alpestris hoyti.** HOYT'S HORNED LARK.— Breeds near the Arctic Circle and comes south in winter to the northern United States. It has been taken south to Camp Floyd, Utah, and to Emporia, Kans., and hence undoubtedly occurs in winter on the plains of northeastern Colorado.]

Cyanocitta cristata. BLUE JAY.— It seems strange in view of the commonness of the bird in Wray County, that it should have been so lately added to the Colorado list. The number of 'The Auk' for January, 1905, contains records by Smith and Henderson of its occurrence at Wray and at Yuma. The species is now known to occur locally along the whole eastern edge of the state, from Holly to Julesburg; it is a common breeder at Wray and wintered there 1907–8; it ranges west to Yuma, where it was first seen in 1903, and has been noted in summer from May 19 to November 1, but is not yet known to remain through the winter. It has also been recorded west to Limon (Felger) and to Springfield (Alexander). A

possible explanation of its late addition to the Colorado bird list may be that the species has moved west with the settlements through Kansas and Nebraska and has only lately reached Colorado.

Aphelocoma woodhousei. WOODHOUSE'S JAY.— Common November 26–29, 1907, at Gaume's Ranch, Baca County, and undoubtedly winters in that vicinity (Cary). This is the most eastern record for Colorado.

Cyanocephalus cyanocephalus. PIÑON JAY.— This species was found by Warren to be quite common, April and May, 1905, among the cedars of Baca County. Cary found them common in the same region November 26–29, 1907, but there is no proof as yet that they breed in the vicinity. Noted at Yuma, September 26–October 13, 1906 (Patten).

Dolichonyx oryzivorus. BOBOLINK.— So many records have been contributed the last few years that it seems probable the species is becoming more common in the State. Some of these records are: Beulah, May 18, 1906 (Jones); Salida, May 14, 1908 (Frey); Middle Park, near the Troublesome River, July 11, 1897 (Smith); near Steamboat Springs, June 1–10, 1907, probably breeding (Warren); Meeker, probably breeding, 1905 and 1906 (Hopkins); Boulder, many seen for four consecutive years, 1902–1905, during May and July, showing that they have become established as regular migrants; not yet known to breed in this vicinity (Henderson). No sure breeding records as yet in Colorado.

Agelaius phœniceus fortis. THICK-BILLED REDWING.— Much information has been gathered the past few years in regard to the Red-winged Blackbirds of Colorado. Where only one form was recognized in 1897, there are now three forms, *fortis*, *neutralis* and *arctolegus*; while the typical form *phœniceus* is now restricted to the eastern United States. The above form, *fortis*, breeds on the plains of Colorado east of the mountains, and also west in the foothills, at least to Estes Park at 7500 feet altitude. It winters on the plains from Denver southward.

Agelaius phœniceus neutralis. SAN DIEGO RED-WING.— This form probably breeds in Colorado west of the main range and winters irregularly north at least to Grand Junction.

[**Agelaius phœniceus arctolegus.** NORTHERN RED-WING.— This is a northern form, breeding north of the United States and coming south in winter to Colorado. A specimen was taken December 29, 1892, at Semper, and the form will probably prove not uncommon on the plains of northeastern Colorado. This form has not yet been accepted by the A. O. U. Committee.]

Icterus spurius. ORCHARD ORIOLE.— Common summer resident at Wray, and breeds (Smith). This is the first breeding record for the State. Seen at Yuma, May 17 and 19, 1908, (Patten).

Icterus galbula. BALTIMORE ORIOLE.— Common summer resident at Wray and breeds (Smith). The first certain breeding record for Colorado. Seen at Yuma, May 22, 1905, May 22, 1906, May 24, 1907 (Patten).

Icterus bullocki. BULLOCK'S ORIOLE.— Has been noted as a common breeder, along the eastern edges of the State from Baca County to Yuma County.

Euphagus carolinus. RUSTY GRACKLE.— A small flock February 20, 1909, near Littleton (Richards).

Hesperiphona vespertina montana. WESTERN EVENING GROSBEAK.— Eggs taken in Estes Park in 1903 (Dille). Young just out of the nest, July 22, 1898, in Routt County (Smith).

Carpodacus mexicanus frontalis. CALIFORNIA LINNETT.— Not rare at Yuma (Patten). Breeds east to Gaume's Ranch, Baca County (Warren). This is the most eastern breeding record in the State.

Loxia leucoptera. WHITE-WINGED CROSSBILL.— A pair, August, 1906, at 8400 feet altitude on Upper Bear Creek, Clear Creek County (Knaebel).

Leucosticte tephrocotis. GRAY-CROWNED ROSY FINCH.— Two, February 15, 1903, Altona (Dille).

Leucosticte atrata. BLACK ROSY FINCH.— One, April 6, 1907, Sulphur Spring, Grand County (Warren).

Leucosticte australis. BROWN-CAPPED ROSY FINCH.— Two, January, 1906, and several January, 1907, near Fort Lewis; a pair on the summit of the La Plata Mountains June 24 and July 22, 1906 (Gilman).

Astragalinus tristis. GOLDFINCH.— Specimens recently examined from the plains of eastern Colorado, from the foothills near Denver, and even from Livermore, within the lower foothills, all prove to be the eastern form.

Astragalinus psaltria. ARKANSAS GOLDFINCH.— The Colorado bird list in 1900 included this species and two subspecies. Since then it has been ascertained that the forms *arizonæ* and *mexicanus* represent merely plumage variations due to age. These two forms are therefore withdrawn from the list. The species ranges north to Meeker, where found common August, 1905 (Cary). East to Las Animas, July, 1892 (Fisher).

Calcarius ornatus. CHESTNUT-COLLARED LONGSPUR.— One, April 5, 1906, at Cortez (Gilman).

Rhynchophanes mccowni. MCCOWN'S LONGSPUR.— Abundant breeder at Pawnee Buttes, June, 1909 (Cary).

Zonotrichia querula. HARRIS'S SPARROW.— One October 9, 1907, near Kit Carson, Cheyenne County (Smith). One October 22, 1908, New Windsor (Osterhout). These are the third and fourth records for the State.

Zonotrichia coronata. GOLDEN-CROWNED SPARROW.— A flock of fifteen at Salida April 19, 1908 (Frey). Second record for Colorado.

Zonotrichia albicollis. WHITE-THROATED SPARROW.— One, May 3, 1908, Yuma (Patten). Fourth record for the State.

Spizella passerina arizonæ. WESTERN CHIPPING SPARROW.— Specimens of the Chipping Sparrow taken in extreme eastern Colorado, at Springfield, Baca County, prove to be the western form, which is there a tolerably common breeder (Warren).

[**Spizella passerina.** CHIPPING SPARROW.— It seems probable in the light of the above record, that the typical eastern form does not occur in the State, and it will therefore be withdrawn from the Colorado list until some undoubted specimen is obtained.]

Spizella pallida. CLAY-COLORED SPARROW.— Breeds south on the plains to Monon, Baca County (Warren).

Spizella breweri. BREWER'S SPARROW.— Ranges east to Monon, Baca County and breeds (Warren). Common breeder at Yuma in 1909 (Cary). Seen at Sterling, July 1892 (Fisher).

Spizella pusilla arenacea. WESTERN FIELD SPARROW.— Yuma, May 9–11, 1908 (Patten). First record for Colorado.

Junco aikeni. WHITE-WINGED JUNCO.— Common November 27, 1907, at Gaume's Ranch, Baca County (Cary).

Junco hyemalis. SLATE-COLORED JUNCO.— Two, April 6, 1905, Lamar (Warren).

Junco hyemalis oreganus. OREGON JUNCO.— One near Denver, October 16, 1885 (Smith). First record for Colorado.

Junco hyemalis montanus. MONTANA JUNCO.— One, November 27, 1907, Gaume's Ranch, Baca County (Cary). One of the most widely distributed Juncos in the State during the winter.

Junco phæonotus caniceps. GRAY-HEADED JUNCO. — One was taken January 18, 1904, at Boulder and sent to the Biological Survey for identification. Most northern record in winter.

Amphispiza bilineata deserticola. DESERT SPARROW.— Tolerably common breeder at Gaume's Ranch, Baca County; taken there May 18–25, 1905 (Warren). This is a large extension of the known range eastward.

Amphispiza nevadensis. SAGE SPARROW.— One, March 18, 1904, near Boulder (Dille). This is the first record in Colorado east of the front range.

Peucæa cassini. CASSIN'S SPARROW.— It had been expected that this species would be found in Colorado, and the first record for the State came from the southeastern corner where it was most likely to occur — near Springfield, May 27, 1905 (Warren). But an entirely unexpected extension of the known range was the finding of the species breeding at Barr. Eggs were taken there July 14, 1907. (Hersey and Rockwell).

Aimophila ruficeps scotti. SCOTT'S SPARROW.— One near Trinidad, September 17, 1903 (Howell). This is the first record for Colorado and the most northern record for this subspecies.

Melospiza georgiana. SWAMP SPARROW.— One was taken October 2, 1907, near Mosca (Cary). This is the second record for the State and the first west of the mountains.

Passerella iliaca schistacea. SLATE-COLORED SPARROW.— Three, spring of 1906, near Fort Lewis in southwestern Colorado (Gilman). These are the first reported from that part of the State.

Pipilo maculatus montanus. MOUNTAIN TOWHEE.— Many years ago Thorne published the statement that this form sometimes occurred at Fort Lyon. That eastward record has lately been exceeded by the taking of a specimen April 28, 1905, at Monon, close to the Kansas line (Warren). One, taken at Lamar, May 17, 1907, by H. G. Smith was sent to the Biological Survey for identification. The Mountain Towhee is of course only a migrant on the plains.

Pipilo fuscus mesoleucus. CAÑON TOWHEE.— Abundant November, 1907, at Gaume's Ranch in northwestern Baca County and noted to the northward to Caddoa in the Arkansas Valley (Cary). These are the most eastern records in the State, though the species had previously been reported almost as far east at Watervale, August, 1906, and April, 1907 (Smith). The most northern record is that of the specimen collected at Boulder March 17, 1895 (Smith).

Oreospiza chlorura. GREEN-TAILED TOWHEE.— Occurs in migration on the plains almost to the Kansas line; common in spring in Baca County; Monon, May 3, 1905, and Springfield, May 11, 1905 (Warren). Seen at Yuma in the spring from May 3, 1906, to June 11, 1907, and in the fall from September 24, 1904, to September 30, 1908 (Patten).

Zamelodia ludoviciana. ROSE-BREASTED GROSBEAK.— A pair near Loveland, June 1, 1902 (Burnett).

Guiraca cærulea lazula. WESTERN BLUE GROSBEAK.— Las Animas, July 1892, not rare (Fisher); Wray, a fairly common breeder (Smith); Yuma, seen each spring for the last five years, earliest May 17, 1907 (Patten); Altona, one, August 16, 1901 (Felger); Altona, several, about June 18, 1902 (Dille); Loveland, a pair June 7, 1902 (Burnett).

Passerina cyanea. INDIGO BUNTING.— One May 7, 1901, near Denver (Felger); one June 9, 1906, at Hugo (Ferrill).

Spiza americana. DICKCISSEL.— Not rare, July, 1892, at Sterling (Fisher).

Calamospiza melanocorys. LARK BUNTING.— Breeds south to Navajo Springs, La Plata County (Gilman); to Trinidad (Fisher); and to Baca County (Warren). In other words, the southern limit of the breeding range coincides quite closely with the southern boundary of Colorado. A very late migrant was seen November 7, 1907, at Saguache (Cary).

Piranga ludoviciana. WESTERN TANAGER.— Comes east regularly in migration to Yuma, where it has been noted in the spring from May 10 to June 4 and in the fall on October 5, 1908 (Patten).

Piranga erythromelas. SCARLET TANAGER.— One May 17, 1902, at Palmer Lake (Smith); one May 20, 1904, Pueblo (Smith); one June 4, 1904, Grand Junction (Rockwell).

Progne subis. PURPLE MARTIN.— Several, August, 1905, White River Plateau, 8000–9000 feet (Cary); one at 9000 feet July, 1907, Uncompahgre Plateau (Cary).

Bombycilla garrula. BOHEMIAN WAXWING.— Comes south on the plains to Yuma, where it was seen January 22, 1905, and January 17–18, 1907 (Patten).

Lanius borealis. NORTHERN SHRIKE.— South in winter almost to the southern boundary of the State; a few November, 1907, at Gaume's Ranch, Baca County (Cary); one at Earl, Las Animas County, November, 1907 (Cary). One at Silverton, October 28, 1893 (Loring).

Vireosylva olivacea. RED-EYED VIREO.— Fairly common spring and fall migrant at Yuma; extreme dates are May 18 and September 8 (Patten).

Lanivireo solitarius cassini. CASSIN'S VIREO.— Douglas Spring, Routt County, September 4, 1906 (Cary); Silverton, October 21, 1893 (Loring); near Creswell, Jefferson County, September 9, 1887 (Smith); near Denver, September 16, 1884 (Smith).

Lanivireo solitarius plumbeus. PLUMBEOUS VIREO.— Solitary Vireos, presumably of this form, have been seen at Yuma in May of both 1905 and 1907 (Patten).

Vireo belli. BELL'S VIREO.— One, Denver, June 12, 1903 (Smith). This is the first record for Colorado. Later it was found as a fairly common breeder along the eastern edge of the State at Holly, Wray and Julesburg (Smith). One at Yuma, May 8, 1906 (Patten).

Vireo vicinior. GRAY VIREO.— Four specimens were taken at Lamar, May 16–20, 1907 (Smith). This is the first and only record for Colorado and an extension two hundred miles to the northeast of the previously known range.

Mniotilta varia. BLACK AND WHITE WARBLER.— One May 23, 1907, at Holly (Smith).

[**Protonotaria citrea.** PROTHONOTARY WARBLER.— Has been credited to the State (Auk, XXIV, 1907, 342) on the strength of three specimens said to have been taken near Monument and at Pueblo. There is evidently a mistake in the locality where the specimens were obtained for the Prothonotary is a swamp warbler and would find no congenial surroundings near Pueblo to say nothing of the pine clad hills of Monument. The species better wait for further proof, before it takes a place in the Colorado list.]

Vermivora chrysoptera. GOLDEN-WINGED WARBLER.— One May 25, 1906, at Yuma (Patten). This is the first record for the State.

Vermivora virginiæ. VIRGINIA'S WARBLER.— A large extension of the known range to the eastward is the result of the one taken May 3, 1905, at Monon, Baca County (Warren).

Vermivora peregrina. TENNESSEE WARBLER.— Two, May 20–21, 1904, Wray (Smith); abundant at the same place May 21–23, 1909 (Cary). Common May, 1907, at Holly, Manzanola, Kit Carson and Julesburg (Smith).

Compsothlypis americana usneæ. NORTHERN PARULA WARBLER.— One near Denver, May 5, 1904 (Smith); a flock of about a dozen May 27, 1907, at Kit Carson (Smith).

[**Dendroica æstiva sonorana.** SONORA YELLOW WARBLER.— Later investigations make it probable that all the Yellow Warblers of Colorado should be classed under the one form *æstiva*. The above form *sonorana* is therefore withdrawn from the State list.]

Dendroica cærulescens. BLACK-THROATED BLUE WARBLER.— One, September 18, 1903, Wray (Smith). Seen at Yuma, September 19, 1904; September 10, 1906 and October 6, 1906 (Patten).

Dendroica coronata. MYRTLE WARBLER.— One, December 31, 1907, Holly (Smith). This is the first winter record for Colorado.

Dendroica magnolia. MAGNOLIA WARBLER.— One, May 12, 1905, near Springfield (Warren). One May 22, 1907, Holly (Smith). Two, May 21, 1909, near Wray.

Dendroica graciæ. GRACE'S WARBLER.— Several May, 1907, Pagosa Springs (Cary).

Dendroica nigrescens. BLACK-THROATED GRAY WARBLER.— One July, 1892, Trinidad (Fisher); several September 4–8, 1906, Douglas Spring, Routt County (Cary). The most northern record in western Colorado.

Dendroica townsendi. TOWNSEND'S WARBLER.— One August 14, 1894, Estes Park (Fisher); one August 24, 1906, near Bagg's Crossing, Routt County (Cary).

Seiurus aurocapillus. OVENBIRD.— Seen May 18, 1906, and September 18, 1906, at Yuma, (Patten).

Oporornis tolmiei. MACGILLIVRAY'S WARBLER.— Several May, 1905, Springfield (Warren). Noted at Yuma each May for the last four years (Patten). Sterling, June 1–2, 1909 (Cary).

Geothlypis trichas occidentalis. WESTERN YELLOW-THROAT. — One July, 1905, in Middle Park near Hot Sulphur Springs (Cary). This is a higher altitude than usual.

[**Icteria virens.** YELLOW-BREASTED CHAT.— This form was admitted to the original list through a misunderstanding. It has no Colorado record and should be dropped.]

Setophaga ruticilla. REDSTART.— A few August 25–27, 1906, near Bagg's Crossing of the Snake River, Routt County (Cary); several May 17–24, 1908, Salida (Frey).

Oroscoptes montanus. MOUNTAIN MOCKINGBIRD.— One, April 21, 1905, near Springfield (Warren); one October 10, 1904, Yuma (Patten).

Mimus polyglottos leucopterus. WESTERN MOCKINGBIRD.— Common on the plains of southeastern Colorado, north to Yuma (Patten); abundant June, 1906, at Pawnee Buttes, northeastern Weld County (Henderson). Common at Sterling in 1909 (Cary). One May 23, 1907, near McCoy at 6800 feet altitude — the most northwestern record (Warren).

Dumetella carolinensis. CATBIRD.— A few breed near Fort Lewis, La Plata County; one at Mancos May 3, 1906 (Gilman).

Catherpes mexicanus conspersus. CAÑON WREN.— Observed by the parties of the Biological Survey in many localities in southwestern Colorado, east to the plains and north to the Grand River. The most northwestern record is that of the one seen September 12, 1906, near Rangely, Rio Blanco County (Cary). Along the southern part of the State it has been traced east to Baca County, where one was seen November 27, 1907, at Gaume's Ranch (Cary) and near Cheyenne Wells, one November 22, 1906 (Warren). The most northern records east of the mountains are of those obtained at Golden February and October, 1907 (Test) and at Longmont, October 20, 1907 (Burnett).

Thryomanes bewicki bairdi. BAIRD'S WREN.— Records for this species have gradually accumulated until now it is known to be more common in

southwestern Colorado than it is east of the range, where it was first discovered in the State. It breeds locally but not uncommonly in western Colorado and has been observed north to Rangely, where two were noted, September 17, 1906, and to Elk Springs, Routt County, where one was seen September 11, 1906 — the most northwestern record for the State (Cary). East of the mountains the species has been recorded from Colorado Springs, Loveland, Pueblo, Fort Lyon, Holly, and from Gaume's Ranch, Baca County. It had been supposed that these records from the plains referred to the plains form *cryptus* and the one from Gaume's Ranch was so recorded by Cary (Auk, XXVI, 1909, 184), as had been done previously by Ridgway (Birds N. & Mid. Am., III, 1904, 555), for all the Bewick Wrens of Colorado. An examination of the specimen taken by Smith at Holly, May 23, 1907, shows it to be *bairdi* and makes it evident that all Bewick Wrens in Colorado belong to the one form.

Cistothorus stellaris. SHORT-BILLED MARSH WREN.— One was shot October 23, 1907, and another seen the next day near Mosca — the first record for Colorado and the only record for the species west of the mountains (Cary).

Certhia familiaris montana. ROCKY MOUNTAIN CREEPER.— Yuma, October 22–25, 1904 (Patten).

Sitta carolinensis nelsoni. ROCKY MOUNTAIN NUTHATCH.— The former lists of Colorado birds have given the white-bellied Nuthatches under two forms, *carolinensis* and *aculeata*. Both these names should be withdrawn and in their place the above name should be employed for all the white-bellied Nuthatches of Colorado.

Bæolophus inornatus griseus. GRAY TITMOUSE.— Common September 1906, in the Escalente Hills of Routt County — the most northern record for the State (Cary).

Psaltriparus plumbeus. LEAD-COLORED BUSH-TIT.— Two flocks, September 4 and 8, 1906, near Douglas Spring, Routt County — the most northern record for the State (Cary).

Polioptila cærulea obscura. WESTERN GNATCATCHER.— In 1897, there was no record for a Gnatcatcher in western Colorado. Now the records have multiplied until it is known locally from many places north to Grand Junction. Fairly common breeder near Cortez and near the Dolores River in southwestern Montrose County, June and July 1907 (Cary); Grand Junction, common, May 17, 1906 (Ferrill); Walsenburg, one, May 21, 1907 (Cary); Boulder, one May 12, 1905 (Henderson). This last is the most northern record for Colorado.

Myadestes townsendi. TOWNSEND'S SOLITAIRE.— Eggs July 27, 1906, near Arkins at 6200 feet altitude — nearly two thousand feet lower than usual (Cary); Gaume's Ranch, Baca County, abundant November 26–29, 1907 (Cary); noted in migration at Yuma May 24–25 and September 6 to November 5 (Patten).

Hylocichla mustelina. WOOD THRUSH.— One, May 27, 1905, at Yuma — the first record for the State (Patten).

Hylocichla guttata. ALASKA HERMIT THRUSH.— Monon, Baca County, May 3, 1905 (Warren).

[Hylocichla guttata pallasi. HERMIT THRUSH.— There seems to have been a misunderstanding or a mixing of specimens that served as the basis of the record on which this species was admitted to the Colorado list. All efforts to locate the Thorne specimens have proved unavailing and it seems best to withdraw the name from the State list.]

Sialia sialis. BLUEBIRD.— Fairly common in extreme eastern Colorado, from the Arkansas River to the Platte, and breeds near Holly (Smith). Noted each year at Yuma, the extreme dates of observation being April 18 and November 1 (Patten). Denver, eggs June 21, 1899 (Dille).

Sialia mexicana bairdi. CHESTNUT-BACKED BLUEBIRD.— Yuma, one February 28, 1906 (Patten).

Sialia currucoides. MOUNTAIN BLUEBIRD.— Gaume's Ranch, Baca County, common November 26–29, 1907 (Cary); Springfield, March 1–22, 1908 (Alexander); Yuma, February 28, 1906, and March 18, 1907 (Patten).

THE SINGULAR CASE OF THE BLACK DUCK OF NORTH AMERICA.

BY JONATHAN DWIGHT, JR., M. D.

THE case of the Black Duck is one of extreme interest to many people, partly because the species is one of the best known of the North American water-fowl and partly because the naming of a new race has been productive of unexpected consequences. First a shuffle of the scientific names was found necessary and now the new 'race' itself seems to be based upon nothing more tangible than the adult birds, as becomes evident from the material I have gathered. The pitfalls, nomenclatural as well as ornithological, into which even the most eminent authorities may fall are singularly illustrated in a full discussion of the case. As yet, some facts have been missing and some misinterpreted, so that the whole story needs to be retold and from a new standpoint.

The nomenclatural side may be very briefly dismissed here, as it has already been thoroughly discussed in the pages of 'The Auk' (Vol. XXVI, April, 1909, pp. 175–179). It was in 1902 (Auk, XIX,

April, 1902, pp. 183–188) that Mr. Brewster separated the birds of the northern part of the range of the Black Duck under the name *Anas obscura rubripes* or Red-legged Black Duck, restricting the name *obscura* to the southern birds. Presently it was discovered that the name *obscura* was preoccupied some twenty-five years by an Old World species, so, according to the rules of nomenclature, *obscura* had to be dropped as a synonym and *rubripes* took its place. This left the ordinary Black Duck without a name until Mr. Brewster provided the name *tristis*, so that the two races stand, up to date, as *Anas rubripes rubripes* and *Anas rubripes tristis*.

The ornithological side of the question has hitherto been presented only from the describer's standpoint and he has been unfortunate in lacking some trenchant facts that put the others in quite a new light. His characters for the Red-legged Black Duck (*rubripes*) are bright red legs and feet, a yellow bill, heavy streaking about the head and throat and large size; while the birds (*tristis* formerly *obscura*), from which the new form is separated, have brownish legs, dusky olive bills, and less streaking while they are smaller in size. Now, these differences are exactly the ones that distinguish old birds from young whether they occur in the United States or in Canada. My evidence on this point is conclusive for I have skinned and dissected fully fifty specimens representing many localities, north and south, besides examining dozens of others shot by friends or found hanging in the markets. It is rather singular that Mr. Brewster in his articles has said practically nothing of the differences between old and young because the plumages as well as the colors of the soft parts in old and young are quite different. They correspond to the characters that have been considered subspecific and due to geographical variation. This has been suspected but no one has been able to prove it, nor could it be proved from dried museum specimens in which the original colors and age are only matters of guess work.

For some years I have taken great pains to obtain the fresh material necessary for study. A series selected from many fresh specimens sent me from Long Island, New York, shows that the Black Duck, like many of the other ducks, slowly passes from the juvenal into the first winter plumage, a change in the color of the feet and bill taking place at the same time. The feet of grown young

birds, at first an olive-brown, become gradually reddened, and finally in the spring they are of nearly as bright a red as that of the adults, while the dusky bill brightens to greenish and then to yellow-green or yellow. There is nothing unusual in this change of color, which occurs in many species of ducks, as well as among other birds, and we know well how in the case of the Eiders and Scoters there is, in addition to brightening colors, a transformation in the shape and size of the bill. Once the adult colors of the soft parts are attained they are never lost, and so it is with the Black Duck — the bill of the adult is at all seasons of the year a bright greenish yellow and the feet a coral red, these colors dulling only a trifle after the breeding season. In females the colors are regularly duller than those of the males.

There is considerable variation in the time at which young birds acquire the red legs and yellow bill; some of them resemble adults as early as January while others are still dull in April. A very few laggards in vitality seem to remain immature during their first year, as is often the case with other species, but aside from plumage there are other earmarks of immaturity. The bones, the trachea and larynx and the sexual organs proclaim approximately the age of specimens carefully examined. It is worthy of note that the dusky head-markings of adults merely *average* darker than those of young birds, which more often have unspotted chins, but the variation in both old and young is considerable. The plumage of adults differs somewhat from that of young birds and it should be remembered, too, that young birds in unlike stages of plumage may be shot on the same day. It may be urged that these variations, due to age and season, belong only to the northern birds and that the southern birds never acquire the red legs and other characters of the supposed *rubripes*, but such is not the case. There are many difficulties to be overcome in obtaining breeding specimens which would of course settle the question at once. The males become exceedingly shy and difficult to find in the breeding season and nobody wants to slaughter brooding females even if nests be found. Moreover, the game-laws must be respected, especially by collectors. But before spring shooting was abolished some years ago on Long Island, New York, a number of freshly killed birds were sent me that scarcely needed dissection to prove them to be breeding birds. They were

shot at various dates in April and all had red legs. However, it was not until the present year that I secured the last link required in my chain of evidence. Through the courtesy of the Forest, Fish and Game Commission of New York State special permission was granted and an adult male, killed on Long Island, June 11, 1909, came fresh into my hands. This bird has the red legs and other characters supposed to belong to the northern 'race' alone, and should set at rest any lurking belief in the subspecific distinctness of *rubripes*. The specimen is in full postnuptial moult, and evidently was recently mated.

The opera-glass contingent seems to have missed an opportunity for making observations that would be of value, because some of them must have had a chance to see the color of the legs of summer ducks. I have noticed, without a glass, that the wild birds breeding about the Central Park lakes in New York City have red legs, but such evidence, derived from semi-domesticated water-fowl, is not convincing in itself alone. I would also call attention to the fallibility of trained gunners when a question of scientific importance is at stake. The very man who shot my June bird had previously assured me that the summer birds of Long Island did not have red legs! Yet, he like many other gunners knew there were two kinds of Black Ducks in winter.

Summed up in brief, the evidence shows that all young birds, both in Canada and along the Atlantic Coast of the United States, have brownish legs, while breeding adults from the same localities have red ones. Under these circumstances the 'Red-legged Black Duck' as a subspecies does not appear to have a leg left to stand on — not even a red one. If an ornithologist of Mr. Brewster's ability can go astray in his conclusions, what may not the rest of us do? His two articles should be read afresh to understand how easy it was to take the wrong path, and the episode should be a warning object lesson for all describers to take to heart. Now at last after much expenditure of energy the Black Duck (*Anas rubripes*) remains an undivided species ranging over eastern North America, and we have only to regret the loss of its time honored name *obscura* for which at present there seems to be no help.

The Florida Duck (*Anas fulvigula*), with its southwestern race *maculosa*, seems to be specifically distinct. It has a black marking

at the base of the bill and a median, angle-shaped line of buff on each tail feather that are lacking in the Black Duck, while the rich buff of the head and throat, immaculate on the chin and parts adjacent, and the broad ochraceous streakings of the body are rarely approached by its northern relative. The Texas race *maculosa* seems poorly differentiated from *fulvigula*; the dusky markings about the head are a trifle more extensive and the black at the base of the bill is less conspicuous as a rule. The adults of both have red legs.

It may be well to point out here an error in Ridgway's 'Manual' wherein the Black Duck and the Florida Duck are in the group 'Wing without any white band.' As a matter of fact, in both of these species there is a very distinct band tipping the feathers of the speculum and it is rarely absent even in females.

It is rather beyond the scope of the present paper to take up the two Mexican species (*Anas aberti* and *Anas diazi*) of the Black Duck group, but from descriptions there is certainly room for doubting their specific distinctness from *fulvigula*.

GENERAL NOTES.

Capture of an American Eider at Chicago.— There appear to be very few authentic records of the American Eider (*Somateria dresseri*) having been taken on Lake Michigan, so that its occurrence at Chicago may be of interest to readers of 'The Auk.'

On December 1, 1908, an individual of this species was shot by a fisherman over decoys set off the 55th Street Pier near Jackson Park, and was brought to me for identification. It proved to be an immature male in beautiful plumage. I made the skin and had the specimen positively identified by Dr. Ned Dearborn of the Field Museum of Natural History.— J. L. DeVine, *5478 Ellis Avenue, Chicago, Ill.*

Breeding of the Least Bittern (*Ardetta exilis*) **in Chester Co., Pa.**— On June 6, 1909, while wading through a cat-tail swamp near Berwyn, Chester Co., Pa., two incomplete Least Bittern's nests were found and one bird seen. On visiting the place again on June 12, one of the nests was found completed, and contained 4 eggs. The nest was situated in a clump of

rushes (*Juncus effusus*) and cat-tails (*Typha latifolia*), 12 inches above water, which in that spot was about two feet deep. The cat-tails were bent over above the nest forming a partially covered arch. The nest itself was loosely, but firmly, constructed of rushes, and measured 9 inches across by 4 inches deep; a slight depression held the eggs. Although this species is a regular breeder in the Delaware River marshes of Delaware County, which borders Chester County on the east, and of Philadelphia County, which borders Delaware County on the north, as far as I have been able to ascertain, this constitutes the first breeding record for Chester County.— LEONARD S. PEARSON, *Wayne, Pa.*

The Black Rail in Maryland.— In 'The Auk' for April, 1909, p. 190, I mentioned that several specimens of the little Black Rail were said to have been taken on the Patuxent River in Maryland. Through the courtesy of Mr. W. F. Roberts, I am now able to give three records. Mr. Roberts, who was an associate member of the A. O. U. from 1888 to 1899, is an enthusiastic sportsman, has had long experience in rail shooting, and is thoroughly familiar with the habits of the various species in this vicinity. In a recent letter he says:

"For more than 25 years the writer has been cognizant of the regular occurrence of *Porzana jamaicensis* on the marshes of the Patuxent River, in the vicinity of Mt. Calvert, Md. It appears more reluctant to take wing than *P. carolina* and more are taken during October than September — the two months of rail shooting. They are never common, but I learn of several individuals every season and have the following record dates: Oct. 19, 1906; Sept. 22, 1907; and Oct. 12, 1908."

The only other record for this rail in Maryland with which I am familiar is that of a specimen presented to the National Museum by John Dowell. This bird (No. 97,717) was taken on Piscataway Creek, Prince George County, on September 25, 1877.— T. S. PALMER, *Washington, D. C.*

First Appearance of the Sanderling in the Vicinity of Detroit.— In August, 1908, the Sanderling (*Calidris arenaria*) was noted for the first time in the vicinity of this city. Specimens were taken by Messrs. W. C. Wood, Spicer, Jones, and the writer. With them came a White-rumped Sandpiper (*Actodromas fuscicollis*) which is the first autumn record for the county. The Sanderling reappeared May 16, 1909.— J. CLAIRE WOOD, *Detroit, Mich.*

Actodromas fuscicollis in Philadelphia County, Pa. — This species, which is rightly regarded by ornithologists as a rare transient in this vicinity, is mentioned in Warren's 'Birds of Pennsylvania,' revised edition, page 85, as a "very rare spring and fall migrant," and in Stone's 'Birds of Eastern Pennsylvania and New Jersey,' we learn (page 32) that it is a "rare or irregular transient," and also, on page 73, that "this species

probably occurs in small numbers during migrations...." This last is highly probable, as on this page Stone further states that it is not an uncommon transient on the New Jersey coast, for, like all of the Limicolæ that occur regularly in any numbers along this coast during migrations, their occurrence inland on the Delaware River and other streams is to be expected and looked for during and after severe and protracted northeast and southwest storms. This is a fact well known to sportsmen who take advantage of such occasions to go out after shore birds and other water fowls, and seldom do they return empty handed.

During the past several years I have devoted much of my time to the study of the water and shore birds, ferreting out the records of all that occur on the Delaware, but nowhere have I found any recent and reliable records of the occurrence of this species in this vicinity. There is a probability that gunners confuse it with the Pectoral Sandpiper, which it resembles, and this uncertainty of the identity of the species makes it almost impossible to ascertain anything definite regarding the bird's status from such sources.

The only records of the White-rumped Sandpiper's occurrence in this vicinity that I know of follow: —

A mounted bird in my collection — where it remained unidentified for several years — was picked up by my brother George E. Miller on October 7, 1901, at Port Richmond, this county, on the shore of a pond. The taxidermist who mounted it failed to ascertain the sex for me, but said it was very fat and in excellent condition. It is of course in fall or winter plumage.[1]

At this locality on October 10, 1906, my brother George shot one but ruined it entirely as a specimen with a heavy charge of No. 6 shot, that tore and mutilated the bird. It, too, was in fall plumage and also in fine condition.

These are the only records of the White-rumped Sandpiper that I can vouch for *now* as occurring here, but further investigation may bring to light several others of hazy authenticity at present.— RICHARD F. MILLER, *Frankford, Philadelphia, Pa.*

The Spruce Partridge in the White Mountains.— Late in August, 1908, on descending the Crawford bridle path on Mount Clinton, just below the timber line, I came upon a female Spruce Partridge (*Canachites canadensis canace*) with a single chick about one third the size of its mother. The older bird was very tame. I walked within four feet of her as she stood upon a little knoll of moss, while the chick made its way nervously off into the forest. She was also strikingly tranquil. Once in a while, with a low, guttural note, she would ruffle her plumage for a moment and look at me

[1] Since the foregoing was written the bird has been presented to Dr. Witmer Stone, of the Academy of Natural Sciences of this city, in which institution it can now be seen. R. F. M.

with mild anxiety. But throughout my stay near her she did not move ten feet from the spot where I first saw her.

On July 18, 1909, about a quarter of a mile below the timber line, I found a female Spruce Partridge lying in the same path. When I had approached within a distance of about twenty feet, she raised herself slightly and four young, looking like average domestic chicks on the day of their hatching, ran out into the path. To my surprise they soon took flight, and with very rapid wing strokes and with dangling legs they quickly disappeared amongst the trees. The mother bird was more agitated than the one I had seen the year before, but showed none of the excitement so familiar in the mother Ruffed Grouse. I repeatedly stroked her back with my umbrella, and she seemed absolutely indifferent to this treatment.

Since the Crawford bridle path is one of the most frequented of the White Mountain trails and is travelled every season by hundreds of tourists many of whom camp and too many of whom are ruthless destroyers of wild life, it is remarkable that the Spruce Partridge retains its racial tameness in this region and, indeed, that it survives near the path at all. —Nathan Clifford Brown, *Portland, Maine.*

The Passenger Pigeon — Only One Pair Left.— Still clinging to my belief that the Passenger Pigeon will never again be seen in its wild state, I have felt a special interest in the remaining birds belonging to the Milwaukee and Cincinnati flocks which have been in confinement for many years. In my last remarks on this species (Auk, Vol. XXV, 1908, p. 18) I stated that the remnants of these flocks then numbered but seven birds (6 ♂, 1 ♀), with little or no chance of further reproduction. This number is now reduced to a single pair, and doubtless the months are numbered when this noble bird must be recorded as extinct.

Under date of August 9, 1909, Mr. A. E. Wiedring, who has had charge of the Milwaukee birds, writes that the remaining four males, which I saw in 1907, died between November, 1908, and February, 1909, and that he attributed the cause to tuberculosis. The specimens were not preserved, they being in very poor plumage and apparently going through a belated moult.

On July 29, 1909, Mr. S. A. Stephen, General Manager of the Cincinnati Zoölogical Company, wrote me that one of the two old males in the Gardens died in April, 1909, leaving one male, about twenty-four years old, and the female which came from Prof. Charles O. Whitman's flock in 1902, and now about thirteen years old, and unquestionably infertile. Mr. Stephen thought that the bird died simply of old age, there being no apparent signs of disease. The specimen was moulting and in too poor a condition to be saved.— Ruthven Deane, *Chicago, Ill.*

The Black Gyrfalcon in Connecticut.— A fine female *Falco rusticolus obsoletus* was shot at Durham, Conn., Jan. 27, 1907, and sent to me and is

now in my collection. This specimen appears to be the only one known to have occurred in Connecticut.— JNO. H. SAGE, *Portland, Conn.*

The Acadian Flycatcher in Ontario.— The discovery of this bird (*Empidonax virescens*) in Ontario has long been expected by bird students and reports have at times been made of its occurrence only to be disproved when investigated. It is therefore perhaps a little strange that it should turn out to be probably a not uncommon resident of certain parts of the western peninsula of Ontario.

About fifty miles southeast of Detroit and only a few miles from Lake Erie there was formerly an immense black ash swamp, portions of which are still in existence, and it was in these, where the mosquitoes were of sufficient quantity to feed a large number of Flycatchers, that I found the Acadians on June 8 and 9 of this year. There was an undergrowth of saplings in the swamps and the birds apparently spent their time near the ground. Their conspicuous note attracted my attention at once and it was quite easy to secure specimens for identification.

I was walking through the country from west to east and as my plans included the covering of about fifteen miles a day, I had not much time for explorations on the side, but after finding these birds in two places about ten miles apart, I am convinced that there must be many other localities in that district where they nest. One of the specimens taken was a female with an egg almost ready for extrusion.— W. E. SAUNDERS, *London, Ont.*

European Starling Nesting at Princeton, New Jersey.— A pair of European Starlings (*Sturnus vulgaris*) nested in a large willow by the side of a tiny stream where the latter crosses Moore Street in Princeton. The young are now (July 7, 1909) out of the nest. I have not been able to get any further data concerning them but as I believe this to be the first record from this locality the fact is worth noting. My attention was first called to them by the peculiar purring sounds from the youngsters when a parent bird was near; having raised several broods by hand the sound was a familiar one to me. The old birds are very shy.— BRUCE HORSFALL, *Princeton, N. J.*

The Meadowlark in Maine, and Other Notes.— The Meadowlark (*Sturnella magna*) has arrived here and is breeding (June 15, 1909) on this side of the Penobscot. It is one of the group of Alleghanian birds which are steadily pushing their way eastward across what was formerly a forest portion of the State. The advance of these birds is curious and should have been studied much more closely than it has been so far. The important point is the determination of how long one of our north-and-south flowing rivers like the Kennebec and the Penobscot holds a species in check. They seem very reluctant to cross a stream like the Penobscot,

here about a quarter of a mile wide. From five to fifteen years is required before species, well established in Bangor, come over here, just across the river, to breed. There have been Meadowlarks in Bangor for many years. Mr. Ora Knight states in his 'Birds of Maine' that he has known of their breeding in one place there as early as 1894. They have been exceedingly local, and Mr. Knight, in his book, which was published in 1908, speaks of knowing of only a few within a radius of forty miles — I speak from memory, but I think he says, five pairs. I have known of their breeding at the Hersey Farm, back of the city; at the Waterworks, two miles above the center; and this year in Hampden, five miles below the center. Last year my brother and father saw one on the Brewer side of the river, the first I had ever heard of being here. It was not seen again. If it bred at all, it was in a range of meadows so extensive that it was out of hearing from any travelled road.

This spring about the middle of May reports came to me from three quite separate localities of their being seen in Brewer. Also a fourth at Seboois Lake, which tarried a day on an island and then departed, probably to Nova Scotia or northward. May 14, 15, 16, 17 I heard of Meadowlarks being seen. Just about a week later a small boy told me of finding a nest containing two eggs. He seemed to know the bird and gave a clear description of the nest and eggs. These eggs were taken by something, probably a boy, as no shells were left, and the child told me to-day that he had not seen the larks since. Last Saturday, however, June 12, my son discovered a nest with five eggs. Monday morning I went with him to photograph the nest. While we did not flush the old bird, there could be no doubt about the eggs being Meadowlark's. Both old birds, very shy indeed, were seen in the vicinity but would not come within a quarter of a mile of the nest. When we were a long way off, one of them took a flight of three fourths of a circle and dropped just behind the crest of the hill where the nest was, undoubtedly planning to run up to it stealthily. As we did not disturb the eggs and shall not visit the place again, there is a good chance for the young to hatch. (The nest reported from Hampden had well grown young on Sunday.) These young birds stand a good chance of growing up. Though in a field which will be mowed by machine after the Fourth, the nest is only two rods from the edge of a cow pasture where they would be perfectly safe. We are anxious to see the birds well established here and would regret having their attempt to breed defeated.

May 15, some thirteen miles east of Brewer, I saw a Red-headed Woodpecker (*Melanerpes erythrocephalus*). The only other instance I ever heard of in this region was in 1878, when my father killed an immature bird on Machias waters far east of here.

About the same time a young man wrote me to identify for him a bird which he had seen on a fence near the Brewer line, in a thickly settled farming district, miles from any heavy woods. He described it as about the size of a small crow with a tuft of scarlet feathers "which stuck out like a boy's scalp lock that will not lie down." I had no hesitation in calling

it a Pileated Woodpecker, though the locality was extraordinary and the bird is rare, in our near vicinity, even in our densest and oldest woods.— FANNIE HARDY ECKSTORM, *Brewer, Maine.*

Note on the Red Crossbill and the Pine Finch in South Carolina.— Having passed many winters in the Southern States without seeing either species, I was interested to find both the Red Crossbill (*Loxia curvirostra minor*) and the Pine Finch (*Spinus pinus*) common in South Carolina in the winter of 1908–1909. At Camden, Kershaw County, between December 12 and January 4, no bird note was to be heard so often as that of the Pine Finch except the Blue Jay's; and the bird occurred abundantly in and near the town, in parties of from three or four to about a dozen individuals. The Crossbill was not abundant, but I heard it nearly every day. Sometimes I heard it only, as it flew over head; sometimes I saw single individuals, again two or three. On January 1, at half-past seven in the morning, I saw five together at close range.

I went to Aiken, in the southwestern part of the State, on January 5. There I found the Pine Finch common but decidedly less so than it had been at Camden. From this time its numbers gradually diminished, and, when I left for the North, late in February, it had become uncommon. The Crossbill was also less in evidence at Aiken than at Camden. I first saw it at the more southern town on January 8, when I met with two. The largest number seen together was five, at 7.45 A. M., January 16. On January 23 two tarried for a short time in a pine distant but a few feet from my window; and this was the last of the Crossbill at Aiken for the season, so far as I could discover.— NATHAN CLIFFORD BROWN, *Portland, Maine.*

The Grasshopper Sparrow at Ottawa, Ontario.— On June 30, while prowling around in one corner of the Experimental Farm here, I heard a here unknown but to me familiar song. Its author allowed me to approach closely and to inspect him carefully with the glass. It was, as I knew immediately upon first hearing his song, a Grasshopper Sparrow (*Ammodramus savannarum australis*), an old acquaintance of mine in the south. There were two birds there, both singing from the wire fence around a large timothy field. Next day I went there again to secure it, but could find it no more. But there is no mistake possible; I know the bird too well, having taken and prepared many when living in Maryland. This is quite an extension of the range of this species, comparatively unknown in Canada. As stated on authority of W. E. Saunders in Macoun's 'Catalogue,' it is fairly common only in the two southwestern counties of Ontario, is rare at London, and has only twice been taken at Toronto (J. H. Fleming).— G. EIFRIG, *Ottawa, Ont.*

The Prairie Warbler (*Dendroica discolor*) **in Northern Ontario.**— On

May 11 of this year, the writer, while paddling along the shore of Lake Doré, near Eganville, Renfrew County, Ontario, noticed in the alder bushes, which then showed no sign of leafing out, a warbler that seemed somewhat out of place there. On taking it, it proved to be a female *D. discolor*, with which I am very familiar from Maryland. This is quite an extension of the hitherto known range of this southern warbler. In the 'Catalogue of Canadian Birds' by Macoun, there are only two records given for Canada as a whole, both from Toronto, Ontario, both of May 11, 1900. Beside this, it has once been taken at Mt. Forest, Wellington County, Ontario. The capture of this more southerly species at this place and date was all the more remarkable, since the weather had so far been highly unfavorable to migration, especially warbler migration. It had been cold nearly every day in May. Of warblers I saw during the whole day only one Myrtle (*Dendroica coronata*) and one Black and White Warbler (*Mniotilta varia*). The specimen is now in my collection.— G. Eifrig, *Ottawa, Ont.*

Breeding of the Mockingbird near Boston.— A pair of Mockingbirds (*Mimus polyglottos*) nested near my house in the West Roxbury district of Boston this year (1909) and successfully raised a brood of four young, which when I last saw them were fully fledged and taking full care of themselves. One of the birds made its appearance near my house Nov. 22, 1908, and it (presumably the same one) was seen occasionally all through the winter. Up to April 2, 1909, only one bird was seen, and that one had advertised itself as a male by beginning to sing on March 21. On April 2 or earlier it was joined by a female, and from that time on the pair were often seen together, and the male sang assiduously. The nest, which when first discovered, May 20, contained four eggs, was placed about fifteen feet from the ground near the top of a Japanese conifer within about a hundred feet of my house. The young left the nest June 12, and I caught and banded two of them with the aluminum bands furnished by Dr. Leon J. Cole of the Peabody Museum, New Haven. The numbers of the bands are 1453 and 1460. I sincerely hope that neither of these birds will be shot by any ornithologist for the purpose of ascertaining the number on the band, and if any banded Mockingbird is seen in Massachusetts this fall or next year, I shall be grateful if the observer will communicate the fact to me (as well as to Dr. Cole) and will spare the bird's life.

I have been unable to find any more recent Massachusetts breeding-records for this species than those cited by Messrs. Howe and Allen in 'The Birds of Massachusetts' (1901), though Dr. A. L. Reagh tells me that he is credibly informed that a pair of Mockingbirds built a nest and laid eggs in Roslindale, Boston, in 1902, the male being probably the bird observed by me near there March 23 of that year and reported in 'The Auk' (XIX, July, 1902, p. 292), but that the nest was broken up. The records include two sets of eggs taken, one in Springfield by Dr. J. A. Allen

and one in Groton by Mr. C. F. Batchelder. The only cases where young birds have been found with their parents in Massachusetts, thus giving satisfactory evidence of a successful nesting within the State, are of two nearly full-grown young taken by Mr. W. S. Townsend at Arlington, Aug. 15, 1883 (C. W. Townsend, Auk, I, April, 1884, p. 192), and of one young female with speckled under parts shot by Mr. H. A. Torrey at Marshfield, Aug. 15, 1889 (O. and O., XIV, Sept., 1889, p. 144). The present instance seems to be the first to be recorded where the entire nesting has been under observation in Massachusetts.— FRANCIS H. ALLEN, *West Roxbury, Mass.*

The Carolina Wren in Washtenaw County, Michigan.— The Carolina Wren (*Thryothorus ludovicianus*) has not been recorded from Washtenaw County since May 18, 1891, when a female was taken at Ann Arbor. But on June 6, 1909, the writer was fortunate enough to discover a male in full song in a bit of swampy woodland to the south of Ann Arbor. The clear, penetrating notes of the wren's fine song first drew my attention but the wren was not located until some time later when he was found on the lowest limb of a small sapling, preening his feathers. He was remarkably free from timidity and permitted of considerable familiarity. On June 13, this same locality was again visited but without results as far as the Carolina Wren was concerned. However, on June 20 the nest with five well developed young and one runt egg was discovered by following up the old bird. She was, by the merest chance, noted gathering moths and other insects from the decaying logs that lay about on the ground and by patient watching was seen to approach a small stump and disappear underneath it. Soon she returned with a bit of the excrement of the young in her bill. This she dropped at a short distance from the nest and resumed the hunt for more bugs, etc. Investigation showed the nest — a rough structure of moss, leaves, etc., lined with dried grasses, horse-hair and a few feathers — underneath a bit of decayed wood among the roots of the stump. Only one bird, presumably the female, was present in the vicinity of the nest-site, and she was far from showing any anxiety at my presence so near her home. On June 30 I revisited the nest in company with Mr. N. A. Wood of the University Museum and Mr. F. Novy. At that time the nest was deserted and the young flown. Mr. Wood collected the nest and runt egg for the Museum. One thing in particular regarding the find struck me as rather interesting and that was the fact that after the date of first discovery of the presence of the wrens not a snatch of song was heard on any of the subsequent visits.— A. D. TINKER, *Ann Arbor, Michigan.*

Brown Creepers Nesting near St. Louis.— About twenty miles northwest of St. Louis, in the bottom-land of the Missouri River, there is a swampy formation called Duck Pond. It consists of a horse-shoe-shaped body of more or less stagnant water extending for perhaps a mile and a quarter.

The water is studded with trees that have been dead long enough to lose their branches and part of their bark. Bushes and cat-tail flags border the inside of the horseshoe, while beyond the dead trees is a fringe of mixed growth of willows, ash and elm. The adjoining fields are not at present in cultivation. While wading through this swamp on the 6th of June, 1909, I observed two Brown Creepers (*Certhia familiaris americana*) making trips to one of the dead elms with something in their beaks. As they were not very timid, the spot they were visiting was easily located. A strip of bark about eight inches wide had drawn away from the tree and a nest was placed behind this and about twelve feet from the water. It did not contain young, as I expected, but the surface was covered with small pieces of bark, evidently the objects that the birds were carrying. I left the nest undisturbed and returned the following week. During an hour's wait no creepers visited the tree, though I thought I heard one's note. The nest was still empty, possibly deserted, and, as it was very doubtful whether I would have another opportunity to visit the nest, I collected it. The nest was placed between the bark and the trunk, filling the crescent-shaped opening. Some coarse material, sticks and pieces of bark, formed a framework for the support of the nest proper which was composed almost entirely of downy material, packed rather closely. The downy material appeared to be a mixture of fine shreds of bark and a cotton-like substance. The width of the nest was four and a half inches at the top and the depth was about three and a half. Mr. Widmann, after examining the nest, felt sure that it was of last year's make. Its condition indicated that young birds had been raised in it at some time. Perhaps the pieces of bark that were being added were in the nature of repairs. On the 20th of June the tree was again visited for a short time but no creepers were heard. On the 27th of June, I entered the swamp at a point about a half mile from the 'Creeper tree' and was fortunate enough to find a pair of Creepers feeding in the live growth of willows and ash. They did not act as though feeding young, the only thing in any way peculiar in their actions being the fact that one bird, on two occasions, flattened itself out on a horizontal limb, with wings and tail extended, and remained in that position for several seconds. Other birds frequenting the swamp were Flickers, Hairy, Red-headed, and Red-bellied Woodpeckers, Yellow-billed Cuckoos, White-eyed Vireos, Yellow-breasted Chats, Redstarts, Yellow-throats, Prothonotary Warblers, Crested Flycatchers, Bronzed Grackles, Redwing Blackbirds, Green Herons, Chickadees, and Titmice. One Black-billed Cuckoo and a Song Sparrow were also seen, both rather rare breeders in this part of Missouri.— NORMAN DEW. BETTS, *Pittsburgh, Pa.*

A Colony of Hermit Thrushes at Yaphank, Long Island, N. Y.— On the afternoon of the 25th of July, 1908, I heard an unfamiliar bird song in the woods at the easterly end of the village of Yaphank, not far from the middle of Long Island. Upon investigation I found several of the

birds, but as they sang from the tops of the pines or other trees, it was difficult for me to secure a good view with my glass. Early the next morning I was more fortunate, and secured a much better view of a rather tame bird, and was convinced that I had to do with Hermit Thrushes (*Hylocichla guttata pallasi*) resident on Long Island in mid-summer. This idea, however, was not strengthened by an examination of the literature, and it seemed from the records quite improbable that a colony of Hermit Thrushes should reside so far south as Yaphank, Long Island, and only 40 feet above the level of the sea.

Later I read with interest the article by Mr. Francis Harper in 'The Auk' for October, 1908, wherein he records a Hermit Thrush singing in the woods between Holbrook and Patchogue, Long Island. He also mentions the two previous Long Island records for immature birds and quotes from Dr. Braislin that, "Further investigation will probably show that the Hermit Thrush is, though rare, a regular summer resident on Long Island."

From observations made during July, 1909, I may state that the Hermit Thrush is one of the most common birds at Yaphank, and that I have heard as many as four singing at one time. On one occasion on the 31st of the month, one sang for over an hour with only momentary intermissions caused by its changing its position among the trees, or by my approaching too near. It, however, was a tame bird, and very accommodating. I found that the thrushes were not only abundant in the pitch pine and oak woods at the easterly end of the village, but that they were to be met with in the woods several miles to the north, in the vicinity of Longwood manor house. This district appears then to be the chief summer home of the Hermit Thrush on Long Island, and the ornithologist may with certainty expect to hear this fine songster if he but repair to Yaphank at the proper season.— Wm. T. Davis, *New Brighton, Staten Island, N. Y.*

North Carolina Notes.— Dovekie (*Alle alle*). This bird appeared in numbers on the North Carolina coast last winter. In January, 1909, reports came in of a small black and white "duck, with a bill like a chicken," hitherto unknown, these reports covering the coast line from Roanoke Island to Beaufort. A man living on the point of Cape Lookout told me that he had seen not less than fifteen or twenty dead ones washed up along shore, and that flocks of them "used" in Lookout Cove during the winter. The game warden at Cape Hatteras said that they were on Pamlico Sound in flocks of hundreds. Flocks were also reported from Core Sound. Several were taken at Beaufort and forwarded to northern ornithologists. The Museum received three specimens in the flesh, all from Beaufort, and two skins from the coast a little south of Roanoke Island. From what I can learn there was a flight of Dovekies on this coast about twenty years ago, with only a very few stragglers recorded since. All those found dead were reported as much emaciated, as was certainly the case with the three received by me.

Sooty Tern (*Sterna fuscata*). A specimen — adult male — was caught alive within a few miles of Raleigh on June 30 of this year. It did not attempt to fly when pursued and was easily captured by hand. I received it in the flesh the next day, it having died during the night. The body was much emaciated, but showed no signs of injury.

Red Phalarope (*Phalaropus fulicarius*). On February 23, 1909, the State Museum at Raleigh received a specimen in the flesh from M. Leslie Davis, of Beaufort, N. C. This specimen was picked up on the beach near Beaufort the previous day. I often hear of small "web-footed" birds being observed in some numbers along our coast after a heavy storm and imagine that phalaropes are not uncommon under such conditions.— H. H. Brimley, *Curator, State Museum, Raleigh, N. C.*

Notes from Crawford Notch, N. H.— At the summit of the Crawford Notch, New Hampshire, some two thousand feet above sea level and in the heart of the White Mountain region, is a small clearing surrounded on all sides by forest. Among many species to be expected here I have found the following which seem worth noting and which were not included in my list of Crawford birds.[1]

1. **Larus argentatus**. Herring Gull.— On September 25, 1907, three of these birds visited the Notch. Two of them remained in the air while the third alighted for a few moments on Saco Lake, a tiny sheet of water. Another example occurred on September 25, 1908. It remained the greater part of the forenoon.

2. **Calidris arenaria**. Sanderling. A single bird passed the afternoon of August 18, 1909, on the shore of Saco Lake. The bird, which arrived during a rain storm, was very tame.

3. **Ægialitis semipalmata**. Semipalmated Plover.— On September 3, 1908, during a northeast rain storm a single bird in company with a Semipalmated Sandpiper remained for a few moments on a sand bar in Saco Lake. The bird was easily approached.

4. **Passer domesticus**. English Sparrow.—Up to the season of 1909 I had noted only one individual of this species — in August, 1905.[2] In 1909, however, several birds occurred and at least one pair nested.

5. **Oporornis agilis**. Connecticut Warbler.— Late in the afternoon of September 27, 1907, a mild, cloudy day, one of these birds flew against a window of the hotel and was killed. It was preserved and is in my possession.— Richard Merrill Marble, *Brookline, Mass.*

Additions to the List of Birds of Allegany and Garrett Counties, Western Maryland.— Since publishing the above-named list (Auk, Vol. XXI) I

[1] A List of Birds found within a radius of one mile from the Crawford House, N. H., September 20, 1907.

[See below, p. 446, for further mention of this paper.—Edd.]

[2] List, page 6.

have kept in touch with the bird-lore of the region referred to and now would add three more species to those enumerated in that list.

Strix pratincola. BARN OWL. In August, 1906, while on a visit to Cumberland, Maryland, I saw a captive specimen of this species, which had been taken at Corrigansville, a hamlet nearby.

Passerculus s. savanna. SAVANNAH SPARROW.— I saw an individual of this species August, 1906, at Mt. Lake Park, Allegany County, the noted summer resort on the Baltimore and Ohio Railway. It must have been an oversight of mine not to find it there and at Cumberland earlier.

Minus polyglottos. MOCKINGBIRD.— During my residence in the region covered by the list, I kept my eyes open for this species, being told that they were sometimes seen, but I failed to find any. Now Mr. John Fulton, a well-known nature lover of Cumberland, writes me, that a Mr. LeFevre found three pairs near Oldtown, Allegany County, on May 5, and subsequently the nest of one of these containing four young. Unfortunately this nest was shortly after robbed of its contents by prowling boys from South Cumberland. It is to be hoped that the other pairs brought out their young safely, so that this fine bird may become firmly established at Cumberland, where, no doubt, it ought to be.— G. EIFRIG, *Ottawa, Ont.*

The Food of Several Maine Water-Birds.— The following notes are the result of a number of actual observations on the food of birds, that for the greater part have been examined under conditions which did not admit of the preservation of the stomach contents for expert examination. Therefore they are here offered as a contribution to a subject both important and interesting.

In the diet of the Herring Gull (*Larus argentatus*) I have noticed sea cucumbers (*Pentacta frondosa*) disgorged by the side of a nest, and during the winter of 1907–08, one of these birds was seen repeatedly dropping a frozen *Pentacta* on Old Orchard beach. Previous to freezing a hole had been torn in its side, evidently by the beak of a gull or crow.

The shell bodies of the beach snail (*Polinices heros*), with operculum attached, have been found by the sides of nests. The broken and empty shells are common at resting places of this gull. This mollusk is a well known and abundant enemy of the common clam (*Mya arenaria*). On the Maine coast it is eaten by modern man to a very limited extent, and in certain sections, and at certain times it is used to a great extent for fish bait. Yet its destruction of the clam, so extensively used in commerce, offsets its own small use, and the habit of the Gull in feeding upon it is an economic service, to be considered in the summary of its feeding habits. At the No-mans-land colony, in summer, I once saw nearly a pint of cockles (*Purpura lappillus*) disgorged by the side of a nest; and at the Brothers, Englishman's Bay, a half pint of the crustacean, *Thysanopoda norvegica*, disgorged by the side of a nest.

Larus philadelphia, besides its diet of fish, and garbage, has been found

feeding over rafts of drifting sea weeds, when its diet was found to consist of maggots, probably *Coleopa frigida*, a fly that breeds at high water mark in decaying seaweeds (*Algæ* and *Zostera*).

Once at Matinicus Rock in the month of August, a school of skeleton shrimps (*Thysanopoda norvegica*) was stranded near the boat house, at high water, and were left in a windrow to perish, by the receding tide. The Arctic Terns were quick to detect their presence, and became engaged in carrying large numbers from the beach to their young, until darkness caused them to stop.

Winter Black Ducks (*Anas rubripes*) taken on the outer islands off the coast in winter have been found to be chiefly fed upon *Littorina palliata*. A specimen taken on the Presumpscat River, in Windham, late in November, was gorged with a fresh water snail (*Campeloma decisa*). Two specimens taken on tide water at the mouth of the same river, in the fall, had their gullets filled with seed of eel grass (*Zostera marina*) and a few isopods (*Idotea marina*).

The importance of *Zostera* as a food for winter birds seems to be considerable. Black Ducks, Whistlers and probably other ducks feed upon its seeds in our caves and bays. Horned Larks, Snow Buntings and other finches feed upon them on our beaches in winter. Geese and Brant devour its rhizomes. Its seeds are of a good size, and the crop extensive. Its value must be enormous though not appreciated.

Wood Ducks coming under my observation have shown a fondness for bulbs of Sagittaria.

A Scaup (*Marila marila*) from the Fox Islands in winter was well filled with shells of *Macoma balthica*.

In the stomach of Whistlers (*Clangula clangula americana*) seed of *Zostera* and shells of *Lacuna vincta* and *Margarita helicina*, both associates on the eelgrass, have been identified.

A King Eider, shot at Scarborough, during the winter of 1907–08, had its gullet filled with large specimens of *Crammarus locusta*, the common sea flea of our shores. Another taken in 1908 was similarly filled with young crabs (*Cancer irroratus*), in both instances to the exclusion of other food.

In the stomachs of Canada Geese, and Brant (*Branta bernicla glaucogastra*) I have found rhizomes of *Zostera*, and in the Canada Goose, sea lettuce (*Ulva lactuca*).

In the stomach of the Common Bittern, besides frogs, I have seen the field mouse (*Microtus pennsylvanicus*) and the large Water Beetle (*Distycus*).

In the stomach of a Dowitcher (*Macrohamphus griseus*), maggots, probably *Coleopa frigida*, a beach fly which abounds on our coast, breeding in decaying sea weeds at or above high tide mark.

Arquatella maritima is abundant on the outermost ledges and islands east of Cape Small. I have found its diet to consist commonly of small

blue mussels (*Mytilus edulis*) and barnacles (*Balanus balanoides*), the same diet, and same resort, as that of the Turnstone (*Arenaria interpres morinella*).— ARTHUR H. NORTON, *Portland, Maine.*

Hybridism and Generic Characters in the Trochilidæ.— I am tempted to offer a few comments on Mr. Walter P. Taylor's interesting article in the July 'Auk,' not merely because the subject is one to which at the present time I am giving special attention, but because I believe there is much to be said against Mr. Taylor's view of the case. Before discussing the question of generic differences, however, I wish to correct an error (for which I seem to be responsible) concerning the type-locality of *Selasphorus floresii*. This is given as "Bolaños, State of Oaxaca," whereas it should read Bolaños, State of *Jalisco*; therefore, the supposed fifth specimen mentioned in the second paragraph on page 292 is the same example as that on which the supposed species was based. There is not the slightest doubt in my mind that this bird is a hybrid of *Selasphorus rufus* or *S. alleni* and *Calypte anna*, and it is not improbable that all four of the known specimens are of California origin, for I have an indistinct recollection of having somewhere read that some of Floresi's specimens were obtained in California and subsequently, through error, labeled Bolaños.[1]

Concerning generic distinctions it will simplify the matter very much to state that the question hinges entirely on what constitutes a genus in birds, and especially in the Trochilidæ. The generally accepted definition of a genus in zoölogy and botany is *a group of species which agree in the possession of certain characters not possessed by any other species or group of species.* In the various definitions of a genus which I have consulted in connection with this article,[2] it is nowhere implied that the differences must be exclusively morphological; the implication being that it is only necessary that a given group or set of species should share in certain obvious characteristics which separate them from any allied group. Every one knows that taxonomic groups, whether generic or of higher rank, are by no means of equal value in all classes of vertebrates (see footnote on page 6, 'Birds of North and Middle America,' Part I), and that birds, as a Class, are so very much more uniform in structure, and at the same time so much more numerous in species than the members of any other Class that, necessarily, a more minute subdivision is required, or, in other words, orders, families, genera, etc. (all super-specific groups), while arbitrarily equal in taxonomic rank are by no means (and cannot be) based on characters of equal anatomical importance. It is unfortunate that this fact is sometimes lost sight of, and that some would require for an avian genus

[1] If I am not mistaken in this impression, a similar case is that of several specimens in the National Museum collection received from Mr. John Xantus and labeled by him "Plains of Colima" which were undoubtedly obtained in California.

[2] See Agassiz, Essay on Classification, § 5, Standard Dictionary, Century Dictionary, etc.

more or less fundamental differences of structure. Moreover, the Trochilidæ bear to other birds much the same relation in this respect that birds in general bear to other classes of vertebrates, for no other family of birds is at the same time so numerous in species and so varied in the details of external structure, yet, notwithstanding the extraordinary range of variation among the more than five hundred species composing the family, so uniform in fundamental structural characters that no one has yet been able to satisfactorily divide it into groups of supergeneric rank. Usually there is little difficulty in segregating the Trochilidæ into generic groups, complying in all respects with the requirements of a genus according to the generally accepted definition; and certainly *Trochilus*, *Calypte*, and *Selasphorus* are groups which can be defined, this being really the best test. *Trochilus* and *Calypte* both differ from *Selasphorus* in the forked instead of rounded or graduated tail, and in entire absence of rufous from the plumage, all the species of *Selasphorus* presenting, in both sexes, more or less of rufous in the plumage and the tail of reverse form from that of *Trochilus* and *Calypte*; while the two last named differ from one another in the exclusive possession by *Trochilus* of abruptly reduced inner (proximal) primaries, with a subterminal angular projection to the inner web, while the adult males have the pileum concolor with the back, the lateral feather of the "gorget" short, and the lateral rectrices pointed; those of *Calypte* having the pileum brilliantly metallic reddish purple or violet (like the "gorget"), the lateral feather of the gorget elongated, and the lateral rectrices rounded terminally and otherwise different in form. The very natural and well-circumscribed group of nine species constituting the genus *Selasphorus* contains no two species more closely allied than *S. rufus* and *S. alleni*, except two of the Costa Rican forms; hence, while everyone (including myself) will agree that it would "be as reasonable to put *S. alleni* in one genus and *S. rufus* in another, as to split up *Trochilus* [*i. e.*, the supergeneric group comprising *Trochilus*, *Calypte*, and *Selasphorus*] *on the basis of characters of no more weight than those separating these two species*," [1] I do not believe that anyone can be found who will claim that *S. alleni* and *S. rufus* are as distinct from one another as either of them is from species of *Trochilus* or *Calypte*.

What is known concerning hybrids among birds, instead of supporting Mr. Taylor's view that *Trochilus*, *Calypte*, and *Selasphorus* are not good genera indicates, if anything, exactly the contrary. In the first place, it may be fairly questioned whether hybrids are relatively more frequent among the Trochilidæ than in other families. Again, hybrids between congeneric species are, so far as I am aware, invariably fertile (*e. g.*, *Helminthophila pinus* + *H. chrysoptera*, *Colaptes auratus* + *C. cafer*, *Anas platyrhynchos* + *A. rubripes*, etc.[2]) while those between distinct genera are

[1] Italics mine.— R. R.

[2] The list might be considerably extended, but this would open the way for a controversy concerning specific characters!

not; consequently hybrids between distinct genera (even when as closely allied as *Trochilus*, *Calypte*, and *Selasphorus*) must necessarily be rare and sporadic.

Mr. Taylor's concluding observation that "Trochiline hybrids occur only between species whose ranges overlap or adjoin" necessarily applies with equal force to *all* hybrids, and therefore has no bearing on the case.—ROBERT RIDGWAY, *U. S. National Museum, Washington, D. C.*

RECENT LITERATURE.

Cory's 'The Birds of Illinois and Wisconsin.' [1]— In a portly volume of 764 pages the Curator of Zoölogy of the Field Museum has given us an illustrated manual of the Birds of Illinois and Wisconsin which for effectiveness of treatment will doubtless long remain without a rival. As stated by the author: "The present work includes, as far as known, all species and subspecies of birds which occur in Illinois and Wisconsin, the total number being 398, with descriptions of their various plumages, nests and eggs, and geographical distribution, together with more or less brief biographical notes concerning them." It is further said: "The keys to families and species are practically the same as those which first appeared in the author's Birds of Eastern North America, revised to meet present needs"; which means the omission of all species and higher groups not found in the area under consideration, and such other modifications as have been found necessary.

The preface is a brief statement of the scope of the work, an explanation of how to use the keys, and acknowledgments of indebtedness to the works of previous authors. Then follows the table of contents, a glossary of terms used in description (illustrated), an Introduction (pp. 13–22), describing and profusely illustrating types of structure of the wing, tail, leg and foot, and bill, and 'how to measure a bird.' Keys to the families and species occupy pages 23–274, and the systematic treatment of the species comprises pages 275–715. The work concludes with 'A Key to the Eggs of the more common birds known to breed in Northern Illinois and Southern Wisconsin' (pp. 716–739, with two half-tone plates of eggs), a Bibliography (pp. 740–750), and an Index.

In 1899, just ten years ago, appeared Mr. Cory's 'Key to the Birds of Eastern North America,' published, like the present volume, by the Field Museum. These Keys, as already stated, constitute the basis of the elabo-

[1] The Birds of Illinois and Wisconsin. By Charles B. Cory, Curator of Department of Zoölogy, Field Museum of Natural History. Publication 131. Zoölogical Series, Vol. IX. Chicago, U. S. A., 1909. 8vo, pp. 1–764, numerous text figures

rate key portion of the present volume, and as they have already been noticed in detail in 'The Auk' [1] it is unnecessary to comment upon them at length in the present connection. A few lines from them, however, may be here transcribed in illustration of the general character of the work here under notice: "In the present case we have a work that is not only elaborate in its pictorial details, simple in method of treatment, and comprehensive in scope, but also systematic and scientific in arrangement ....The text is brief, the cuts occupying the greater part.... Besides the numerous cuts of structural parts, as bill, feet, tail, etc., each species is figured, either full length or half length, to show the most characteristic parts....[The text] is limited to brief diagnoses, in which the distinctive features are emphasized by the use of special [heavy-face] type.... The author in his 'Key' to North American birds has certainly reduced the difficulty of identifying our birds to a minimum, and anyone so unfortunate as not to be able to identify his specimens in any stage of plumage, by Mr. Cory's 'Keys' may well give up the attempt in despair."

The nomenclature is strictly that of the A. O. U. Check-List, down to and including the Fourteenth Supplement (July, 1908), with a few rectifications in an insert facing the title-page, based on the Fifteenth Supplement (July, 1909). Each species is concisely characterized, including the immature and seasonal variations of plumage, and its general distribution is briefly stated, following which is its status as a bird of Illinois and Wisconsin, with, in the case of rare species, the citation of authorities for its occurrence. This part of the work appears to have been very carefully compiled, and rests on the solid foundation furnished by the various recent works on the birds of special localities within the general area here covered.

In general the work is exceedingly free from typographical errors, and in other respects is typographically excellent. We are hence the more surprised to meet (on p. 15) 'rectices' in place of rectrices, especially since attention was called to this error when it originally appeared in 1899, and it was corrected in a subsequent reprint of the original work.

In conciseness of statement, in fullness of detail, in profuseness of illustration, and in efficiency and utility as a local bird manual, Mr. Cory's 'Birds of Illinois and Wisconsin' is entitled to the highest praise, and we congratulate the author and the Field Museum on the addition of this valuable contribution to ornithological literature.— J. A. A.

Wrights' 'Birds of the Boston Public Garden.' [2]— In this little book of some 250 pages the author offers the results of his nine seasons' work (1900–1908) as an earnest, persistent and careful observer of the birds of a

[1] Vol. XVI, Oct., 1899, pp. 366, 367 (Water Birds); Vol. XVII, Jan., 1900, p. 78 (Land Birds).

[2] Birds of the | Boston Public Garden | A Study in Migration | By | Horace Winslow Wright | With an Introduction by | Bradford Torrey | and | Illustrations | [vignette] Boston and New York | Houghton Mifflin Company | The Riverside Press 1909 — 12mo, pp. xx + 238, and 8 photographic illustrations. $1.00 net.

public garden in a large city. Following a short preface and an appropriate introductory note by Bradford Torrey, well-known to readers of 'The Auk,' are some fifty pages devoted to an interesting summary, in turn followed by an 'Annotated List of the Birds of the Boston Public Garden and incidentally of the Common in Migration, 1900–1908,' numbering 116 species and occupying about 150 pages. Few observers are so circumstanced, even if they possess the inclination, as to be able to devote regularly many hours each day during the spring months for so long a period to the study of the bird life of a city park, and Mr. Wright has done well to share the results of his pastime with other ornithologists and bird lovers. In autmun the garden was again regularly visited from the middle of October to the end of November, and also at intervals during the winter.

Following a description of the situation, area, and general character of the Garden, and his methods of investigation, certain generalizations are given, from which it appears that "in the case of twenty common resident species, selected for comparison, the first individuals in the series of years have arrived in the Garden from three to eight days later than in the surrounding country and that the range of first arrival of each of these species in the nine years has been from three to nineteen days later.... The testimony of the Garden seems, therefore, to substantiate very strongly Mr. Brewster's belief that in general the earliest arriving birds are summer residents and that the later arriving birds are migrants bound farther north." Mr. Wright has noted many interesting facts of general interest regarding the manner of migration, the influence of weather conditions upon the length of time migrating birds remain in the Garden, and how different sets of individual birds replace each other during the season of migration. Of special interest also are his daily censuses of birds seen, many of which are given, which include not only the species seen on a given day but the number of individuals of each. Thus on a rainy day in May (May 19, 1900) thirty species were recorded, of which thirteen species were warblers, represented by thirty-three individuals out of a total of fifty-six recorded. On May 16, 1905, thirty-eight species were observed, represented by ninety individuals of which thirty-seven were warblers, representing eighteen species. On May 19, 1907, even this large record was exceeded, but the maximum was on May 12, 1908, when one hundred and thirty-seven birds were noted. In each case, in these censuses, the author gives a list of the species seen and the number of individuals of each. The dates are also given of the larger migration-flights for the whole period of observation. The length of stay of individual birds is noted in a number of instances.

The annotated list is a systematic report on the author's observations of each of the 116 species recorded, year by year, for the whole period of observation, with detailed records of the visitations of the rarer species, and the earliest and latest records for the more common kinds, with such additional comment as may be required to set forth fully the manner of occurrence. In short, the author has set a standard which other observers may well follow with profit.— J. A. A.

Hersey and Rockwell on the Birds of the Barr Lake District, Colorado.[1]— The Barr Lake District, Adams County, Colorado, as here defined is "a circular area fifteen miles in diameter, with the station of Barr as a center." The area is thus practically the same as that treated by A. H. Felger in a previous number of this journal (*antea*, pp. 272–291, with maps, which see), but while Felger's paper includes only the water birds, the present article gives a list of all of the birds (205 species) positively identified as occurring there, and omits "a number of species that without reasonable doubt occur there, because of lack of absolute identification." Felger included many of the species (distinguished by enclosure in brackets) likely to occur, with records of their capture at nearby localities. The present list contains a number of species of water birds not given by Felger as actually taken in the Barr Lake district, their known occurrence resting, in some cases, apparently on the hitherto unpublished records of Mr. Hersey, and in other cases the species are given merely as rare migrants, without further comment. All but one are included in the bracketed portions of the Felger list. The two lists taken together, so far as the aquatic birds are concerned, seem to give the fullest information possible for the Barr Lake district to date. The two papers are exactly synchronous, the "advance print" of the Hersey-Rockwell paper bearing the date on which the July issue of this journal was mailed.

The list of the Barr Lake district land birds numbers about 130 species, and is the first full list of these birds thus far published for this limited area. Half-tone figures in the text, from photographs by the authors, illustrate the nests and eggs of six species of Barr Lake breeding birds. In the present paper dates of occurrence are rarely given, nor are there many references to previous records, but "a table of dates of migration" for the Barr Lake district is promised as a supplemental publication to the present 'List.' — J. A. A.

McGregor on Birds from Northern Mindanao.[2] — This is a report on a collection made by Mr. Andres Celestino in northern Mindanao during the months of October, November and December, 1907, and numbers 106 species, briefly annotated. Six of them are here recorded for the first time from Mindanao, and the capture of another confirms a previous doubtful record of its occurrence in the island.— J. A. A.

McGregor on Philippine Ornithological Literature.[3] — This instalment

[1] An Annotated List of the Birds of the Barr Lake District, Adams County, Colorado. By L. J. Hersey and Robert B. Rockwell. Proceedings of the Colorado Biological Society, Vol. I, No. 3, June 28, 1909. "Advance Print, from The Condor, Vol. XI, No. 4 [pp. 109–122]. Issued June 28, 1909."

[2] A Collection of Birds from Northern Mindanao. By Richard C. McGregor. The Philippine Journal of Science, Vol. IV, No. 1, 1909, pp. 67–77.

[3] Philippine Ornithological Literature, II. By Richard C. McGregor. The Philippine Journal of Science, Vol. IV, No. 1, 1909, pp. 79–86.

consists of 35 titles of papers by the late Marquis of Tweeddale, all but one published during the years 1867–1881, with 15 additional titles of papers by other authors. The annotations show very fully the bearing of the papers cited upon Philippine ornithology.— J. A. A.

Marble on Birds of New Hampshire.[1] — This is a privately printed list of 92 species, given under vernacular names. It contains many records of interest and forms an apparently trustworthy summary of the birds occurring at Crawford's during the breeding season. As the title indicates, it is based on five years' observations.— J. A. A.

Reed's 'Bird Guide.'[2] — In this attractive little work each species is illustrated in color, the figure and the text occupying a single page. The text is biographical, describing the range of the species, its notes, and nesting habits. The colored figures, with the 'Field Key' at the end of the book, afford the means of identification. The illustrations (wash drawings, colored) are surprisingly adequate considering their cost, and will greatly aid amateurs in recognizing the birds they meet with in life. As a 'Bird Guide' it is truly *multum in parvo*.— J. A. A.

Cherrie on New Birds from the Orinoco Region and Trinidad.[3] — The new species and subspecies are, (1) *Formicivora canofumosus*, from the Orinoco; (2) *Planesticus fumigatus aquilonalis*, from Trinidad; (3) *Pachyrhamphus marcidus*, from the Orinoco; (4) *Anoplops rufigula*, from the Caura River, Venezuela. A new genus is *Inezia*; type, *Capsiempis caudata* Salvin.— J. A. A.

Miller's Experiment in the Colonization of the House Martin.[4] — The experiment consisted in taking on July 14, 1908, five young birds from Portland to Shawnee, nine miles distant on the Delaware River in Pennsylvania. The birds, just able to fly, were successfully reared by hand. One of the birds, escaping on the fourth day after they were transferred to their new home, flew away and did not return to the home but was repeatedly seen in the neighborhood associating with Barn Swallows.

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[1] A | List of Birds | Found within a radius of one mile from | the Crawford House, N. H., | in July, August and September, | during the past five years. | By | Richard Merrill Marble. | September, 1907.— Privately printed, 8vo, pp. 8.

[2] Bird Guide. Part 2. Land Birds east of the Rockies, from Parrots to Bluebirds. By Chester A. Reed. Charles K. Reed, Worcester, Mass., 1909. 3¼ by 5½ inches, pp. 1–223 + index. Cloth, 75 cents; in flexible leather, $1.00.

[3] New Birds from the Orinoco Region and from Trinidad. By Geo. K. Cherrie. Science Bulletin, Brooklyn Institute of Arts and Sciences, Vol. I, No. 16, pp. 387–390. Issued June 30, 1909.

[4] An Experiment in the Colonization of the House Martin. By Charles W. Miller, Worthington Society for the Study of Bird Life, Bulletin No. 1, Jan., 1909. 8vo, pp. 12, and 4 half-tone plates.

At the end of eight days the remaining four were allowed to fly in an enclosure; they became very tame and fed from the hand. After five days two more were allowed their freedom. They remained in the vicinity for nineteen days, when they left, "probably to join some roost." They were seen ten days later (August 24), and then disappeared, presumably migrating. Of the two still retained in confinement, one died October 21, of a tumour; the other was then in good health with a prospect of surviving the winter. It thus appears that young martins can be taken from their homes to other localities and reared by hand; but whether the survivors will return to their foster home the following year, Mr. Miller's experiment leaves us in doubt. The results of further experiments in this line may well be awaited with interest.— J. A. A.

Wolcott's Analysis of the Bird Fauna of Nebraska.[1] — The number of species and subspecies known to have occurred within the State of Nebraska is here given as 406. This large number results from the geographical position of the State, which lies "between the humid eastern faunal areas and the arid areas of the West," and thus contains forms characteristic of both these climatic areas. In consequence of these conditions, the eastern and western subspecies of the same species meet and merge, through "a gradual shading of the one into the other. Intermediate specimens occur representing all shades of gradation between them. It may be that only a few of the specimens taken at the eastern end of the State represent the one, while only at the extreme west are found specimens typical of the other."

The species are divided into categories in accordance with the manner of their occurrence within the State, as follows: "I. Species found in some part of the State, in larger or smaller numbers, at all seasons of the year," or are, in other words, permanent residents. These number 72, and nearly all are designated as having been found breeding in the State. "II. Species migrant in spring and fall and which remain in larger or smaller numbers to breed in the State; and also summer visitors which are stragglers and do not breed here." These number 174, and are also nearly all marked as known to breed in the State. "III. Species occurring in the State only in spring and fall migrations and breeding not probable. . . ." numbering 106 species. "IV. Winter visitors to the State" — 46 species. "V. Species now extinct within the limits of Nebraska" — 6 species. "VI. Introduced species" — 2, the Ring-necked Pheasant and the English Sparrow.

A second analysis gives the ratio of representation, by species, of the orders and principal passerine families in Nebraska as compared with North America north of Mexico, on the basis of the A. O. U. Check-List, with interesting results, too detailed for mention in this connection.

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[1] An Analysis of Nebraska's Bird Fauna. By Robert H. Wolcott. Proc. Nebraska Ornithologists' Union, Vol. IV, Part 2, pp. 25–55, with pll. i–vi. August 25, 1909.

A third analysis deals with the breeding species and subspecies (232 in number) of the State in reference to their centers of distribution, as to whether they are northward or southward, eastward or westward; from which it appears that "Nebraska lies, roughly speaking, at the center of distribution of 38 forms." Lists are also given of those breeding mainly to the northward, southward, eastward, or westward of the State.

The faunal areas of Nebraska, considered from the avian standpoint, are considered at length, five 'regions' being recognized, as follows: (1) the Missouri [River] Region; (2) the Prairie Region; (3) the Sandhill Region; (4) the Plains Region; (5) the Pine Ridge Region. These are each geographically defined and their leading characteristics stated, together with lists of the species of birds characteristic of each, followed by a tabular résumé and pertinent comment. A colored map illustrates these faunal regions, and various types of environment are shown in five half-tone plates.

Altogether, Professor Wolcott's 'Analysis' of the Nebraska bird fauna is well done, and a piece of work well worth doing.— J. A. A.

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CORRESPONDENCE.

New Edition of Ridgway's 'Nomenclature of Colors.'

To the Editors of 'The Auk':—

Dear Sirs.— Probably some of the readers of 'The Auk' are aware that I have been engaged, as opportunity allowed, on a new and greatly improved edition of my 'Nomenclature of Colors' (1886). I am happy to be able to announce that after twenty years of necessarily intermittent labor this most difficult and tedious task has at last been accomplished and arrangements made for its early publication, the plates being already in process of reproduction.

The new work will present nearly 1350 colors, arranged scientifically, and reproduced by a method which guarantees a faithful copy of the originals as to hue and tone, absolute uniformity throughout the entire edition, and at the same time as great a degree of permanency as is possible with pigments now known to colorists. The standards of the original work are of course retained, and as many additional colors are named as is practicable. Obviously it is impossible to provide names for all of so large a number of colors, but those which are left unnamed may be easily designated by an exceedingly simple system of symbols, as may also the intermediates, both as to hue and tone — rendering the work practically equivalent to the actual presentation of more than 5300 named or otherwise designable color-samples. In short, the work has been so carefully planned and executed that I have no doubt as to its adequacy to meet all the demands of naturalists and others who have use for a comprehensive color nomenclature and standards. The book will be the same size (except for slightly greater thickness, there being 64 plates instead of the 10 of the old edition) and will sell for about $5.00 net, or only $1.00 more than the original work.

Very truly yours,

Robert Ridgway.

Washington,
Sept. 9th, 1909.

Avian Osteology and Game Bird Protection.

Editors of 'The Auk': —

Dear Sirs:— When one has brought to his attention in a practical way, be it a law, a practice, or a method, anything that tends to give more effective protection to our different species of game birds, it must be believed that it requires no apology to the readers of 'The Auk' in general or to Bird Protection Organizations in particular, to invite their attention to the facts in these pages. Now almost any ornithologist would be kept a guessing as to how, in any possible manner, a knowledge of the osteology

of birds could, through the remotest sort of an operation, be employed as a means whereby the various methods in vogue to protect our game birds would, thanks to such a knowledge, have added to them another process, the application of which tends not only to aid in such protection, but at the same time place the offenders in a position where they may be readily apprehended and be made to suffer the penalties of the laws on the subject. During the times of publication of my various memoirs upon the osteology of game birds in general no such possible use of the facts and information therein set forth ever entered my mind for an instant, and, indeed, it was not until a few years ago when, through a practical demonstration of it, the value of the practice, here to be briefly described, became apparent to me. There is one point which will not be necessary to touch upon here, for every game bird protectionist is more or less familiar with the nature of the heavy fines the law imposes upon all hotel and restaurant keepers for serving to their patrons such birds out of season, or even having them at such times in their possession. In fact the law applies to any one so offending. Well and good, the law is one thing, while to detect, apprehend and punish such offenders is quite another thing, and usually a feat of unusual difficulty in its accomplishment. The Forest, Fish and Game Commission of New York had found it so for years. No method had ever occurred to them by means of which apprehension and punishment of the culprits could be made certain. The great hotels and wealthy restaurants smiled and all over the city violated the law every day with impunity, and numerous markets supplied the demand, and wild turkeys, grouse, quail, woodcock, snipe and the rest were being sold to them quite regardless of the law. Detectives, both men and women,— the best known in the State,— are employed with the view of detecting the law's violators. They resort to the aforesaid hotels and restaurants, even late at night in evening dress, and, out of season, order such birds to be served to them. The sometimes unsuspecting hosts and their waiters, after certain, what they considered to be, the necessary precautionary preliminaries, serve "the real thing." But these detectives are not ornithologists, much less avian ornithotomists, and therefore are subject to being only too often readily deceived, and thus get the Commission into trouble through making false charges. Later on it occurs to them, when not observed by the waiters at the tables they occupy, to slip the bones of the birds served to them into convenient pockets. At the offices of the Commission these bones are carefully preserved in separate boxes, with numbers and dates upon them, with other required data. Except sometimes in the case of woodcock, the heads and feet are never secured, while sterna, pelves, ribs and other bones are commonly so obtained. But what to do with this material, that's the question. Everything renders the solution pressing and therefore at last the suggestion materializes. Send for a 'bone-sharp.' The worthy President of the National Association of the Audubon Societies recommends one, and, without an idea of what is required of him this expert in due course finds himself alone with the

Game Protector, behind closed doors at the offices of the Commission. They are seated and facing each other. One of the aforesaid boxes, with a certain air of mystery, and perhaps grave doubts on the part of the Protector as to the result, is produced, and its contents spread out upon a sheet of paper before the expert. An examination something after the following order ensues:—

Protector:— Can you tell me what these are?

Expert:— Certainly, they are the bones of some bird or other.

Protector (evidently encouraged):— Yes? — and supposing they are, can you tell me, as to the *species* of bird they probably belonged to?

Expert:— Certainly, I can do better than that, for I can state positively that they belonged to some species, or subspecies perhaps, of an American quail of the genus *Colinus*.

Protector (showing marked astonishment): — Could you demonstrate that fact to a judge and jury and swear to it as a witness in a court?

Expert:— Yes, certainly, provided the State makes it worth my while.

Protector (producing another box):— What would you say of this bone?

Expert:— It is part of a sternum of a grouse,— probably a *Bonasa*; I could make absolutely certain by comparing it with material in my own possession.

Protector:— And this?

Expert:— Proximal half of a humerus of a domestic fowl,— chicken — let me see,— yes, the left one.

Protector:— There is a big case, and a big question to be decided here; can you make enlarged drawings of these bones? Are you a good demonstrator? Do you become "rattled" in court? Can you name the bones of *any* fowl, game or domestic one, as easily as you have these?

Expert:— Better try me! No, I'm not perturbed in court (!), and some of these bones I can correctly pass upon in the dark by digital examination alone.

Protector:— Thank you,— that will do. You will hear from me later.

Now when such testimony as this is brought before judge and jury in a court, backed by the material and the affidavits of the detectives or their testimony as witnesses, there can be but one decision,— a verdict for the State. And, when the fines may run all the way from $500.00 to $4500.00 it is certain of having its influence in the matter of the protection of our game birds. Such methods should be encouraged in every possible way, and pushed to the very limit of their usefulness. Woodcock especially stand in need of just such additional protection to prevent their utter extinction.

Very faithfully yours,

R. W. Shufeldt.

Washington, D. C.
14th Aug., 1909.

NOTES AND NEWS.

WILLIAM H. BROWNSON, an Associate of the American Ornithologists' Union, died at his home in South Portland, Maine, September 6, 1909, after many weeks of illness, in the 55th year of his age, he having been born in Norridgewock, Maine, November 5, 1854. His father was the Rev. S. S. Brownson, a prominent Baptist clergyman, and a Scotchman by birth. Mr. Brownson, the subject of this sketch, was graduated from Colby University in 1877, and early directed his attention to journalism, and was for a long period connected with the Portland 'Advertiser,' holding the position of city editor for twenty-five years. He was also for many years a member of the school board of Portland, and in 1905 became superintendent of its schools, which position he held at the time of his death.

Mr. Brownson was actively interested in ornithology, a recognized authority on the local bird fauna of his region, and for some years editor of the 'Journal' of the Maine Ornithological Society, to which he was a prominent contributor. He also published popular articles on the birds of New England in the Portland 'Advertiser,' and frequently gave illustrated lectures on this subject before the Portland Society of Natural History and the Maine Ornithological Society. His loss will be severely felt, not only by these societies, in which he was prominently active, but by the city of Portland whose educational interests he efficiently promoted for many years.

THE new edition of the A. O. U. Check-List of North American Birds, which has been so long in preparation, is now in press, and its early publication may be expected.

As is doubtless known to many of our readers, the New York State Museum will soon publish a work on the Birds of the State of New York, by Professor E. Howard Eaton, who has for some years been engaged in its preparation. It will be in two volumes quarto, with numerous colored plates and texts cuts. Volume I is announced as nearly ready for delivery; it will comprise over 300 pages of text and 42 colored plates; in addition to the generalities of the subject, it will include the species in systematic sequence from the Grebes to the end of the Pigeons.

MR. WILFRED H. OSGOOD has resigned from the scientific staff of the Biological Survey to accept the position of Assistant Curator of Mammalogy and Ornithology at the Field Museum, Chicago. He entered upon his new duties July 1, 1909. We trust that this will bring to him enlarged opportunities for technical work in zoölogy, for which he has shown such marked ability during his connection with the Biological Survey.

MR. ROY C. ANDREWS, Assistant in Mammalogy at the American Museum of Natural History, New York, is on his way to the Philippines to

join the scientific staff of the U. S. Fish Commission steamer 'Albatross,' and will make collections of birds and mammals and other natural history material during the cruise of the 'Albatross' in the East Indian Islands and northward to Formosa and the Batan Islands, in the interest of the American Museum.

MR. M. A. CARRIKER, JR., of the Carnegie Museum of Pittsburgh, who is well known for his work in Costa Rica as a collector of natural history material, left early in August last for South America to make collections of birds and mammals, and incidentally of insects and other special groups of animals. Beginning work in Trinidad, where he has been very successful, he will soon proceed to Venezuela, and thence westward across the continent to the Pacific coast, and southward to Bolivia. The trip is planned to occupy about three years, and to include many hitherto little worked localities. His birds will all go to the Carnegie Museum, and his mammals to the American Museum of Natural History in New York. He left in manuscript an elaborate work on the 'Birds of Costa Rica,' on the preparation of which he had been long engaged, to be published soon by the Carnegie Museum.

AN EVENT of interest to ornithologists is the recent transfer to the new National Museum building in Washington from the old Smithsonian building of the Division of Birds. This change, so long looked forward to, will be of inestimable benefit at least to the younger members of the Division staff and their successors, and indeed to all who will in future have occasion to refer to the collections.

The new quarters of the Division of Birds comprise three rooms at the west end of the top floor; two communicating outside rooms, one 38 feet square (the office), the other, in which the egg-collection is to be stored, measuring 38 × 33 feet. These two rooms are well lighted and afford a fine view overlooking the grounds of the Department of Agriculture, Washington Monument, White House, and a wide sweep of the western horizon, bounded by the Virginia hills. Across a hallway from these two rooms is the storage room for bird skins, a range running east and west, about 32 × 145 feet in size, in which the 305 [1] cases containing the collection are arranged in long rows, in single series. This room faces an open court with large windows all along the side, affording an abundant north light, while the opposite side is lighted by a row of large ground-glass transoms.

In September, 1884, the growth of the bird collection of the National Museum to 100,000 specimens was announced (Science, IV, 497). The number is now more than double that figure, the last entry in the catalogue being No. 212,069.

[1] Of these 305 cases 140 are "half-units," measuring 4×2½ feet, the remaining 165 being "quarter-units," 2×2½ feet, all being 40 inches high. The egg collection fills 70 additional quarter-unit cases.

The writer remembers as well as if it were but yesterday when the entire unmounted bird collection of the National Museum was contained in some three or four dozen tin herbarium cases arranged, book-like, on shelves in the middle room on the second floor of the north tower of the Smithsonian building, excepting the larger birds, which were packed in several old-fashioned wooden cabinets and cases with open drawers, mostly in the west basement. Sometime during the later "seventies" these were transferred to heavy glass-topped square wooden boxes and removed to the topmost room of the south tower, the Curator's office being the room immediately beneath. Several years later [1] (during the earlier or middle "eighties") the collection of smaller birds and the Curator's office were changed to the southwest open gallery in the main exhibition hall of the Smithsonian building, where they remained until the recent transfer. Here were held all the meetings of the A. O. U. Committee on Classification and Nomenclature except the first (and possibly the second), members of which are able to realize more than anyone else except the Curator and his assistants the extreme disadvantages under which all work pertaining to the Division of Birds has hitherto been done.

Members of the Union will benefit greatly from the change through increased efficiency of the Committee, which will hereafter be able, for the first time, to perform the ornithological part of its duties under circumstances calculated to yield satisfactory results.— R. R.

THE Bristol County Academy of Sciences has recently been organized and incorporated under the general laws of Massachusetts, for the purpose of promoting and encouraging "public interest in all branches of natural history and in the liberal and useful arts, and in the conservation of our natural resources." A museum will be formed to illustrate the local fauna and flora, with a laboratory for the use of members engaged in special research and experimental work; and a bureau of information is to be established in aid of naturalists, agriculturalists, etc., to give information and practical assistance in the suppression of insect pests, the improvement of shade and forest trees, the reforestation of waste lands, etc. A library and lectures will also be provided, and publications will be issued whenever the results attained or the welfare of the public seem to render it desirable. The officers are: President, Henry F. Bassett; Vice-Presidents, Walter C. Baylies and Joshua E. Crane; Secretary, A. Cleveland Bent (Taunton, Mass.); Treasurer, Julius Rockwell; Curator, Frederic C. Carpenter.

AT THE annual meeting of the British Ornithologists' Union held in London in May last, a "new rule" was adopted to the effect that any member who "shall have personally assisted in, or connived at, the capture or destruction of any bird, nest, or eggs in the British Isles, by purchase or otherwise, likely, in the opinion of the Committee, to lead to the extermina-

[1] The exact dates of these changes cannot at this moment be ascertained.

tion or serious diminution of that species as a British bird," will render himself liable to have his name erased from the list of members without the assignment of any reason. He can, however, stand for reëlection at the next annual meeting of the Union. Such radical measures, by an organization dominated by leading ornithologists, for the protection of waning species, indicates that ornithologists, as such, are not apathetic in the matter of bird protection.

FROM information recently published in 'The Emu,' it appears that the Lyre Birds of Australia are approaching extinction, having been killed for their beautiful tails, which are much sought after as an article of commerce. Steps have now been taken to prevent the total extinction of these beautiful birds, yet the slaughter is said still to go on. It is not long ago, according to Mr. S. W. Jackson, "that in a locality in the northeast of New South Wales a party of vandals organized a sort of Lyre-Bird 'drive'; surrounding a patch of scrub in which the birds were common, and setting fire to it, they shot down the unfortunate birds as they struggled through one pitiless ring of fire only to meet their death in another. Finally the tails were cut off and the bodies left to rot, much as the victims of Red Indian warfare are scalped and abandoned."

WE ARE glad to learn that important restrictions have been placed on the export of the plumage of "Birds-of-Paradise, Goura Pigeons, and Osprey" (Egrets), from New Guinea. An Act of the Territory of Papua, passed in October, 1908, renders it unlawful "to export or take, or send out of the Territory the skin, feathers, or plumage" of any such bird without the "written consent obtained beforehand" of the Collector or other principal officer of Customs of the Territory. Furthermore, on the 5th of June, 1909, the Governor General (William Humble, Earl of Dudley) of the Commonwealth of Australia, acting with the advice of the Federal Executive Council, issued a proclamation rendering unlawful the importation into the Commonwealth, of the plumage of any such birds except with the written permission of the Collector of Customs of the Territory of Papua. It is to be hoped that similar steps will be taken by other governments to check the export, and thus the wholesale slaughter, of 'plume birds,' not only in New Guinea, but in other tropical islands and countries.

THE Twenty-seventh Stated Meeting of the American Ornithologists' Union will be held at the American Museum of Natural History in New York, beginning on the evening of December 6, 1909. The evening session will be for the election of officers and members, and for the transaction of routine business. Tuesday and the following days of the session will be devoted to the presentation and discussion of scientific papers and will be open to the public. Members intending to present communications should forward the titles to the Secretary, Mr. John H. Sage, Portland, Conn., in time to reach him not later than December 2.

INDEX TO VOLUME XXVI.

[New generic, specific, and subspecific names are in **heavy-face** type.]

Aaptus, 103.
Abbott, Clinton G., the Black-throated Green Warbler as a nesting species on Long Island, N. Y., 80.
Acanthis, 301.
  hornemanni exilipes, 150, 308.
  linaria, 57, 69, 150, 316, 358, 396.
Acanthopneuste borealis, 302.
  borealis kennicotti, 302.
Accentor, 103.
Accipiter cooperi, 6, 394.
  velox, 6, 147, 366, 394.
  velox rufilatus, 302.
Accipitrinæ, 297.
Actitis hypoleucus, 34.
  macularia 5, 23, 68, 146, 290, 366, 393.
Actochelidon, 300.
Actodromas fuscicollis, 427.
Æchmophorus occidentalis, 86, 276, 391.
Ægialitis meloda, 407, 410.
  semipalmata, 68, 290, 410.
Ægiothus, 301.
Aëronautes melanoleucus, 62, 148, 181, 413.
Æstrelata fisheri, 323.
  heraldica, 323.
  sandwichensis, 100.
Agelaius phœniceus, 149, 368.
  phœniceus arctolegus, 301, 404, 415.
  phœniceus fortis, 192, 396, 415.
  phœniceus neutralis, 401, 405, 407, 415.
Agreocantor, 301.
Aimophila ruficeps scotti, 407, 417.
Aix sponsa, 26, 281.
Alauda vulgaris, 256.
Alca, 300.
Alcedo, 300.
Aldrich, Charles, notice of death of, 218.
Alle alle, 436.
Allen, Francis H., breeding of the Mockingbird near Boston, 433.
Allen, J. A., the Habitat Groups of North American Birds in the American Museum of Natural History, 165–179.
Aluco pratincola, 305, 313, 412.
Amadava, 103.
American Museum of Natural History, habitat groups of birds in, 165–174.
American Ornithologists' Union, Twenty-sixth Stated Meeting of, 71–75; Fifteenth Supplement to its Check-List of North American Birds, 294–303; its work for bird protection, 335; new (third) edition of its Check-List of North American Birds, 453; Twenty-seventh Stated Meeting of, 456.
Ammodramus, 298, 299.
  bairdi, 298.
  lecontei, 80.
  nelsoni, 397.
  nelsoni subvirgatus, 84.
  savannarum australis, 299, 432.
  savannarum bimaculatus, 299.
  savannarum floridanus, 299.

Ammospiza, 103.
Ampelis cedrorum, 358.
Amphispiza bilineata deserticola, 417.
nevadensis, 87, 417.
Anas aberti, 426.
boschas spilogaster, 302.
diazi, 426.
ferina, 251.
fulvigula, 179, 425.
fulvigula maculosa, 280, 426.
obscura, 175.
obscura rubripes, 175, 423.
platyrhynchos, 67, 145, 201, 280, 391.
rubripes, 176, 439.
rubripes rubripes, 423.
rubripes **tristis**, 176, 295, 423.
Anderson, Rudolph M., nesting of the Bohemian Waxwing (*Bombycilla garrula*), 10–12; northward range of *Ammodramus lecontei*, 80; breeding of *Dendroica striata* at Great Slave Lake, 80; his zoölogical explorations in Arctic America, 107.
Anhinga, 168, 240, 302.
Anoplops rufigula, 446.
Anous stolidus, 209, 214.
Anser albifrons gambeli, 283.
canadensis, 261.
Anseria, 52, 256.
Anthus pensilvanicus, 152, 399.
rubescens, 70.
spraguei, 152.
Antiganus, 52.
Antrostomus carolinensis, 306, 355.
vociferus, 133, 355, 367, 403, 407, 413.
Aphelocoma woodhousei, 182, 415.
Aphobus, 103.
Apodium, 256.
Aquila chrysaëtos, 6, 68, 147, 394.
dicronyx, 260.
Aramidæ, 313.
Archibuteo ferrugineus, 147.
Archibuteo lagopus sanctijohannis, 147, 394.
Archilochus, 298.
alexandri, 298.
colubris, 298, 367, 395.
Ardea cærulea, 76, 83, 189.
herodias, 27, 146, 285, 366, 392.
herodias treganzai, 302.
lucida, 253.
phaioma, 260.
xanthodactyla, 252.
Ardetta exilis, 426.
Arenaria interpres, 291.
interpres morinella, 410.
Arquatella ptilocnemis, 23.
Arnow, Isaac F., the Masked Duck — a correction, 189.
Asio accipitrinus, 394.
flammeus, 68, 148.
wilsonianus, 78, 148.
Astragalinus psaltria, 182, 416.
psaltria arizonæ, 401.
psaltria mexicana, 79.
tristis, 134, 150, 368, 396, 416.
Astur atricapillus, 147, 394.
Asyndesmus lewisi, 6, 148.
Audubon Society of the State of New York, Thirteenth Annual Meeting of, 219.
Auk, Great, 94, 238, 244.
Little, 237.
Razor-billed, 110, 237.
Avocet, American, 60, 146, 287.
Azuria, 301.

Bæolophus bicolor, 136.
inornatus griseus, 184, 421.
inornatus murinus, 302.
Bailey, Florence Merriam, notice of the third edition of her 'Handbook of Birds of the Western United States,' 102.
Bailey, H. B., northern breeding limit of the Chuck-wills-widow, 306.
Baldpate, 145, 280.

Bangs, Outram, notice of his 'Notes on Birds from Western Colombia,' 320; notice of his 'A New Tyrant-Bird from the Santa Marta Region of Colombia,' 320; see also Thayer, John E.
Bartramia longicauda, 68, 146, 180, 290, 393, 410.
Bergtold, W. H., the Little White Egret in New Mexico, 76; Mexican Goldfinch in Colorado, 79; albino Robins, 196–198.
Berlepsch, Hans Graf von, notice of his 'On the Birds of Cayenne,' 207.
Betts, Norman DeW., Brown Creeper nesting near St. Louis, 434.
'Bird-Lore,' notice of, 108.
Bird, Man-o'-war, 302.
'Bird News,' notice of,
Birds-of-Paradise, protection of in Territory of Papua, 456.
Bittern, American, 26, 146, 285, 366, 392, 439.
Least, 24, 285, 379, 426.
Blackbird, Bicolored, 303.
Brewer's 7, 150, 396.
Red-winged, 115, 149, 192, 198, 222, 228, 368, 372, 405, 435.
Rusty, 223, 368, 396.
Tricolored, 30.
Yellow-headed, 149, 371–389, 396.
Blackcap, 323–326.
Bluebird, 83, 137, 153, 198, 224, 228, 229, 361, 370, 402, 422.
Chestnut-backed, 185, 422.
Mountain, 9, 153, 185, 400, 422.
Western, 9.
Boardman, E. D., see Bridge, Lidian E.
Bobolink, 62, 149, 192, 222, 224, 354, 415.
Bob-white, 25, 132, 147, 355, 410.
Bombycilla cedrorum, 151, 369, 398.
garrula, 8, 10–12, 151, 398, 418.
garrula pallidiceps, 301.
Bonasa umbellus, 24, 132, 366.
umbellus togata, 58, 393.
umbellus umbelloides, 6, 147, 393.
Booby, 205.
Botaurus lentiginosus, 26, 146, 285, 366, 392.
Bowdish, B. S., ornithological miscellany from Audubon wardens, 116–128.
Bowles, J. H., three new records for the State of Washington and one for Oregon, 200; see also Dawson, William Leon.
Braislin, William C., notes concerning certain birds of Long Island, N. Y., 314–316.
Brant, 302, 439.
Black, 392.
White-bellied, 302.
Branta canadensis, 146, 284, 392.
canadensis hutchinsi, 146, 284.
canadensis minima, 284.
nigricans, 392.
Brewer, Ernest, the Carolina Wren at Falmouth, Me., 82.
Brewster, William, Barrow's Goldeneye in Massachusetts, 153–164; a recent instance of the occurrence of the White Pelican (*Pelecanus erythrorhynchos*) in Massachusetts, 185; the European Widgeon in Rhode Island, 186; Snow Geese in Massachusetts, 189; occurrence of the Whimbrel (*Numenius phæopus*) off the coast of Nova Scotia, 190; Evening Grosbeak again in Massachusetts, 194; Prothonatory Warbler taken on the coast of Maine, 309; breeding of the Louisiana Water-Thrush (*Seiurus motacilla*) in Berkshire County, Mass., 310.

Bridge, Lidian E., and E. D. Boardman, a correction, 80.
Brimley, H. H., North Carolina notes, 436.
Bristol County (Mass.) Academy of Sciences, 455.
'British Birds,' proposed scheme of, for marking birds, 332, 333.
British Ornithologist's Club, notice of its 'Report on the Immigration of Summer Residents in the Spring of 1907' in England and Wales, 96.
British Ornithologist's Union, Jubilee Meeting of, 317–319; action of in respect to bird protection, 455.
Brooks, Allan, some notes on the birds of Okanagan, British Columbia, 60–63; three records for British Columbia, 313.
Brooks, Earle A., notes from West Virginia, 84; notice of his 'A Descriptive Catalogue of the Birds in the Ornithological Exhibit of the West Virginia Board of Agriculture,' 327.
Brown, Frank A., the Cardinal at Ipswich, Mass., 194.
Brown, Nathan Clifford, the Spruce Partridge in the White Mountains, 428; note on the Red Crossbill and the Pine Finch in South Carolina, 432.
Brownson, William H., obituary of, 453.
Bryan, Wm. Alanson, notice of his 'Some Birds of Molokai,' 99.
Bubo virginianus, 58, 132, 394.
virginianus arcticus, 412.
virginianus pallescens, 148.
virginianus subsp., 68.
sp. 6.
Bucephala islandica, 153, 154.
Buffel-head, 145, 240, 241, 282, 392.
Bulweria macgillivrayi, 323.
Bunting, Audubon's, 271.
Black-throated, 134, 222, 359.
Indigo, 134, 151, 369, 402, 418.
Lark, 151, 183, 418.
Lazuli, 151.
Snow, 303, 352, 439.
Townsend's 269–272.
Bush-Tit, Lead-colored, 184, 421.
Buteo borealis, 132, 366.
borealis alascensis, 204, 296.
borealis calurus, 6, 147, 394.
borealis krideri, 147.
lineatus, 147.
platypterus, 366, 394.
swainsoni, 83, 147, 394.
Buteonidæ, 297.
Butorides virescens, 132, 146, 314, 407, 409.
Buzzard, Turkey, 231.

Cæruleocantor, 301.
Calamospiza melanocorys, 151, 183, 418.
Calcarius lapponicus, 150, 397.
lapponicus alascensis, 69.
ornatus, 150, 416.
pictus, 150.
Calidris, 51.
arenaria, 427.
leucophæa, 289, 410.
Callipepla squamata, 410.
Calospiza, 103.
Calvert, Philip P., notice of his map of temperature distribution in Mexico and Central America, 333.
Calypte anna, 291, 292, 293, 440,
costæ, 293.
Canachites canadensis, 58, 428.
canadensis osgoodi, 68.
Capsiempis caudata, 446.
Caracara, 320.
Cardinal, 134, 194, 231, 359.
Cardinalis cardinalis, 134, 194.
Carpodacus cassini, 7.
mexicanus frontalis, 416.
purpureus, 358, 368, 396.

Carpophagus, 103.
Carriker, M. A., Jr., notice of his 'Notes on Costa Rican Formicariidæ,' 98; notice of his collecting expedition to South America, 454.
Cary, Merritt, new records and important range extensions of Colorado birds, 180–185; a correction, 312.
Cassicus, 104.
'Cassinia,' for 1908, notice of, 208.
Catbird, 136, 152, 228, 229, 370, 399, 420.
Catharista urubu, 315.
Cathartes aura, 315.
aura septentrionalis, 6, 28, 132, 147
Catherpes mexicanus conspersus, 88, 184, 312, 314, 420.
mexicanus polioptilus, 312.
Catoptrophorus semipalmatus inornatus, 146, 290.
Cedar-bird, 358.
Centrocercus urophasianus, 147.
Centurus carolinus, 133, 199, 413.
Ceophlœus pileatus, 367.
pileatus abieticola, 395.
Cercomacra tyrannina, 98.
Certhia familiaris americana, 435.
familiaris montana, 9, 70, 421.
pinus, 299.
Ceryle, 300.
alcyon, 6, 69, 132, 148, 367, 395.
Chæmepelia, 297, 300.
passerina bermudiana, 297.
passerina pallescens, 297.
passerina terrestris, 297.
Chætura pelagica, 133, 148, 198, 357, 367.
vauxi, 6.
Chamæa, 303.
Chapman, Frank M., notice of his 'Camps and Cruises of an Ornithologist,' 89; notice of his 'A Contribution to the Life-Histories of the Booby (*Sula leucogastra*) and Man-o'-War Bird,' 205.
Charadrius dominicus, 77, 290, 410.
viridis, 261.
Charitonetta albeola, 145, 282, 392.
Chat, Long-tailed, 63, 152.
Yellow-breasted, 136, 230, 352, 420, 435.
Chaulelasmus streperus, 145, 280.
Chen hyperborea, 67, 188, 283, 392.
hyperborea nivalis, 145, 283, 304.
rossi, 283, 407, 409.
Cherrie, George K., a spring record for Bicknell's Thrush on Long Island, 196; notice of his 'New Birds from the Orinoco Region and Trinidad,' 446.
Chewink, 230.
Chickadee, 56, 223, 370, 399, 435.
Carolina, 136.
Chestnut-backed, 9.
Hudsonian, 70, 223, 399.
Long-tailed, 9, 153.
Mountain, 9.
Turner's, 303.
Yukon, 303.
Chicken, Prairie, 303, 411.
Lesser Prairie, 411.
Chondestes grammacus, 80.
grammacus strigatus, 62, 150.
Chordeiles virginianus, 133, 355, 367.
virginianus henryi, 6, 148, 395.
Chuck-wills-widow, 306, 355.
Cinclus, 51.
mexicanus unicolor, 70, 152.
Circus hudsonius, 68, 147, 394.
Cistothorus stellaris, 82, 184, 405, 407, 421.
Clangula americana, 57.
clangula americana, 145, 158, 282, 392, 439.
glaucion, 156.
islandica, 153–164, 282.
Coccothraustes vespertinus montanus, 87.

Coccyges, position of feet in flight, 114.
Coccyzus americanus, 132, 148, 412.
erythrophthalmus, 132, 148, 412.
Colaptes auratus, 133.
auratus luteus, 148, 201, 367, 395, 413.
cafer collaris, 148.
Cole, Leon J., the destruction of birds at Niagara Falls, 63–65; Carolina Wren in Rhode Island, 81; the tagging of Wild Birds as a means of studying their movements, 137–143; notice of his 'The Crow as a Menace to Poultry Raising,' 322.
Colinus virginianus, 25, 132. 147, 355, 410.
Columba fasciata, 87.
passerina, 297.
Columbæ, position of feet in flight, 112.
Columbigallina, 297.
Columbina, 300.
Colymbus auritus, 145, 276, 366, 391, 408.
holbœlli, 391.
nigricollis californicus, 145, 277, 391.
Compsothlypis americana, 309, 353.
americana ramelinæ, 310.
americana usneæ, 199, 309, 419.
Condor, California, 169.
Conoponderas, 103.
Contopus virens, 354, 404.
Cooke, W. W., some new birds for Colorado, 314; the Birds of Colorado — third Supplement, 400–422.
Coot, American, 112, 146, 242, 287, 393, 409.
Cormorant, Brandt's, 169.
Double-crested, 279.
Cormorant, Mexican, 279, 402, 408.
Cormorants, 239.
Corvus brachyrhynchos, 35, 133, 149, 368, 396.
corax principalis, 56, 69, 84, 133, 368, 396.
corax sinuatus, 87, 149.
Cory, Charles B., notice of his 'The Birds of Illinois and Wisconsin,' 442.
Coturnicops noveboracensis, 1–5, 190, 314.
Coturniculus, 298.
bairdi, 150.
henslowi, 29.
savannarum australis, 134.
savannarum bimaculatus, 62, 150.
Cowbird, 7, 149, 357, 368, 396.
Red-eyed, 307.
Craig, Wallace, notice of his 'The Voice of Pigeons regarded as a means of Social Control,' 98.
Crane, Little Brown, 67, 286, 392.
Sandhill, 168, 286, 403, 409.
Whooping, 286, 392.
Creciscus jamaicensis, 190, 287.
Creeper, Brown, 434.
Finch, 353.
Rocky Mountain, 9, 70, 421.
Crossbill, American, 7, 150, 196, 223, 402, 432.
Mexican, 402.
White-winged, 196, 223, 396, 416.
Crow, American, 35, 56, 133, 149, 322, 368, 396.
Clark's, 7.
Cryptoglaux, 298.
acadica, 394.
funerea, 298.
tengmalmi, 298.
Cuckoo, Black-billed, 132, 148, 223, 412, 435.
Yellow-billed, 132, 148, 412, 435.

Cuculi, 313.
Curlew, Eskimo, 77.
Hudsonian, 68, 290.
Long-billed, 146, 290.
Pink, 117.
Cyanocephalus cyanocephalus, 149, 182, 415.
Cyanocitta cristata, 85, 133, 149, 368, 395, 401, 407, 414.
stelleri annectens, 7.
Cypseloides niger borealis, 413.
Cyrtonyx montezumæ mearnsi, 323.

Dafila acuta, 145, 201, 281, 392.
Darters, 239.
Darwin Memorial Celebration in New York, 219.
Davis, Wm. T., a colony of Hermit Thrushes at Yaphank, Long Island, N. Y., 435.
Dawson, William Leon, and John Hooper Bowles, notice of their 'The Birds of Washington,' 328.
Deane, Ruthven, some original manuscript relating to the history of Townsend's Bunting, 269–272; additional record of the European Widgeon (*Mareca penelope*), 304; third record of the Purple Gallinule (*Ionornis martinica*) in Illinois, 305; the Passenger Pigeon — only one pair left, 429.
Deane, Walter, *Asio wilsonianus* in Shelburn, New Hampshire, 78.
Dearborn, Ned, notice of his 'Catalogue of a Collection of Birds from British East Africa,' 327.
Dendragapus obscurus, 147.
obscurus sierræ, 25.
richardsoni, 5.
Dendrocygna fulva, 304.
Dendroica æstiva, 8, 135, 152, 201, 359, 369, 399.
æstiva sonorana, 401, 419.
auduboni, 8, 152.
blackburniæ, 135, 199, 300.
Dendroica cærulescens, 360, 419.
cærulescens cairnsi, 135.
castanea, 360.
coronata, 70, 399, 419, 432.
discolor, 195, 356, 432.
dominica, 360.
fusca, 300.
graciæ, 183, 420.
maculosa, 399.
magnolia, 420.
nigrescens, 183, 420.
palmarum, 316, 356.
pensylvanica, 199, 360.
striata, 70, 80, 152, 369, 399.
townsendi, 183, 420.
vigorsi, 136, 195, 356, 360.
virens, 80, 135, 360, 369.
De Vinne, J. L., capture of an American Eider at Chicago, 426.
Dichromanassa rufescens, 286.
Dickcissel, 151, 222, 359, 418.
Dille, Fred. M., notes on occurrence and nesting of certain species additional to the 'Birds of Colorado,' 86–88.
Dinopium, 53, 250.
(Picoides) erythronotus, 256.
Dipper, American, 152.
Dolichonyx oryzivorus, 62, 149, 193, 415.
Dove, Bermuda Ground, 297.
Ground, 297.
Mexican Ground, 297.
Mourning, 6, 132, 147, 390, 394, 411.
Dovekie, 237, 436.
Dowitcher, Long-billed, 288, 439.
Drepanorhamphus funereus, 99.
Drymophila læmosticta, 98.
stictoptera, 98.
Dryobates pubescens, 133, 367, 412
pubescens nelsoni, 69, 148, 395.
scalaris bairdi, 413.
villosus, 148, 367, 401, 405, 407, 412.
villosus auduboni, 133.
villosus leucomelas, 57, 395.

Dryobates villosus monticola, 6.
villosus terrænovæ, 296.
Duck, Black, 175–179, 242, 247, 295, 422–426, 439.
Buffel-head, 145, 240, 241, 282
Canvas-back, 145, 240, 281, 392, 408.
Eider, 124.
Florida, 425.
Harlequin, 67.
Lesser Scaup, 281, 392, 409.
Masked, 189.
Mottled, 280.
Pintail, 145.
Red-legged Black, 176, 423.
Ring-necked, 281, 392, 409.
Ruddy, 145, 240, 242, 283.
Scaup, 281.
Steamer, 242,
Steller's, 302.
Summer, 26.
Wood, 281, 439.
Dumetella carolinensis, 136, 152, 370, 399, 420.
Dutcher, William, notice of his Annual Report for 1908 as President of the National Association of Audubon Societies, 100.
Dwight, J., Jr., the Bluebird (*Sialia sialis*) in Quebec, 83; the singular case of the Black Duck of North America, 422–426.

Eagle, Bald, 147, 191, 394.
Golden, 6, 68, 147, 171, 394.
Eaton, E. Howard, announcement of his work on 'Birds of New York State,' 453.
Eckstorm, Fannie Hardy, the Meadowlark in Maine, and other notes, 430–432.
Egret, American, 169, 409.
Brewster's Snowy, 295, 321.
Reddish, 286.
Snowy, 76, 285, 303.
Egretta candidissima, 76, 180, 285, 409.
Egretta candidissima brewsteri, 295, 321.
Eider. American, 124, 241, 283, 426.
King, 59, 201, 439.
Northern, 241.
Steller's 302.
Eifrig, G., winter birds of New Ontario, and other notes on northern birds, 55–59; the Grasshopper Sparrow at Ottawa, Ontario, 432; the Prairie Warbler (*Dendroica discolor*) in Northern Ontario, 432; additions to the list of Birds of Allegany and Garret Counties, Maryland, 437.
Elliot, D. G., note concerning, 108.
Emberiza atrata, 253.
auduboni, 271
leconteii, 299.
Empharis, 48, 51.
Empidonax flaviventris, 395.
hammondi, 7.
minimus, 367, 395.
trailli, 87, 149.
trailli alnorum, 199.
virescens, 133, 149, 430.
wrighti, 7.
Ereunetes mauri, 289, 410.
pusillus, 289.
Erismatura jamaicensis, 145, 283.
Euetheia, 301.
Euphagus carolinus, 69, 396, 416.
cyanocephalus, 7, 150, 396.
Euphonia, 103.
Euspiza albigula, 270.

Falco columbarius, 61, 68, 147.
columbarius richardsoni, 147, 394.
erythruros, 252.
islandus, 201.
mexicanus, 61, 147, 191.
peregrinus anatum, 147.
peregrinus pealei, 61.
rusticolus, 394, 429.
sparverius, 147, 366, 394.
sparverius phalœna, 6.

Falco tinnunculus, 296.
torquatus, 255
Falcon, Peale's, 61.
Prairie, 61, 147, 191.
Falconidæ, 297.
Falconinæ, 298.
Felger, A. H., Wild Turkeys in Illinois, 78; Colorado notes, 85; Wild Turkeys [formerly in Colorado], 191; annotated list of the Water Birds of Weld, Morgan and Adams Counties, Colorado, south to the first Sectional Line below the Fortieth Parallel, 272–291.
Field, George W., notice of his 'A Report on the Eastern Pinnated Grouse or Heath Hen (*Tympanuchus cupido*),' 96.
Finch, Black Rosy, 416.
Brown-capped Rosy, 416.
Cassin's Purple, 7.
Grass, 222.
Gray-crowned Rosy, 416.
House, 303.
Lark, 372.
Painted, 359.
Pine, 432.
Purple, 224, 358, 368, 396.
Rosy, 303, 396.
Seaside, 357.
Fisher, Walter T., see Taylor, Thorne C.
Flamingo, American, 170.
Flicker, 133, 367, 435.
Northern, 148, 201, 395, 413.
Red-shafted, 148, 413.
Florida cærulea, 199.
Flycatcher, Acadian, 303, 430.
Alder, 199, 223.
Ash-throated, 87, 414.
Crested, 133, 435.
Great-crested, 358.
Green-crested, 133, 149, 303.
Hammond's, 7.
Least, 367, 395
Flycatcher, Olive-sided, 7, 223.
Traill's 87, 149.
Wright's, 7.
Yellow-bellied, 395.
Forbush, Edward Howe, notice of reports and papers by on the Economic Value of Birds, 97.
Formicivora canofumosus, 446.
Fringilla olivacea, 253.
Fruticantor, 301.
Frutiornis, 301.
Fulica americana, 146, 287, 393, 409.
Fulmarus, 300.

Gadow, Hans, notice of his 'Through Southern Mexico,' 95.
Gadwall, 145, 280.
Gallinæ, position of feet in flight, 112.
Gallinago delicata, 67, 86, 146, 288, 305, 393, 410.
Gallinula galeata, 287.
Gallinule, 247.
Florida, 287, 372.
Purple, 305.
Game case decision by U. S. Supreme Court, 106.
Gannet, 239.
Gavia immer, 145, 277, 391.
Geococcyx californianus, 181, 412.
Geothlypis tolmiei, 8, 152, 399.
trichas, 369, 399.
trichas occidentalis, 8, 152, 183, 420.
trichas trichas, 136.
Gibbs, Robert Morris, obituary of, 105.
Glaucidium phalænoides, 302.
phalænoides ridgwayi, 302.
Glaux, 298.
funerea richardsoni, 68.
Gnatcatcher, Blue-gray, 82, 136, 370.
Western, 184, 421.
Gnorimopsar, 103.
Godman, F. Du Cane, notices of his

'Monograph of the Petrels,' Part III, 95; Part IV, p. 323.
Godwit, Marbled, 146, 289.
Golden-eye, American, 57, 145, 153, 164, 241, 282, 392.
Barrow's, 153, 164, 282.
Goldfinch, American, 134, 150, 224, 228, 229, 351, 368, 396, 416.
Arkansas, 182, 416.
Mexican, 79.
Goose, American White-fronted, 283.
Cackling, 284.
Canada, 127, 146, 261, 284, 392, 439.
Greater Snow, 145, 283.
Hutchins's, 146, 284.
Lesser Snow, 67, 188, 283, 302.
Ross's, 302, 409.
Ross's Snow, 283, 404.
Snow, 302, 392.
Goshawk, 147, 394.
Grackle, Bronzed, 115, 150, 368, 396, 435.
Rusty, 69, 198, 415.
Grebe, Eared, 145, 277, 391.
Holbœll's, 236, 391.
Horned, 145, 236, 276, 366, 391, 408.
Least, 236.
Mexican, 302.
Pied-billed, 145, 277, 391.
St. Domingo, 302.
Western, 86, 276, 391.
Grinnell, Joseph, notice of his 'The Biota of the San Bernardino Mountains,' 202; notice of his Birds and Mammals of the 1907 Alexander Expedition to southeastern Alaska, 203; notice of his 'Birds of a Voyage on Salton Sea,' 204; notice of his paper on 'Three new Song Sparrows from California,' 321; notice of his 'A Bibliography of California Ornithology,' 326.
Grosbeak, Alaska Pine, 69.
Black-headed, 8, 151.
Blue, 359.
Evening, 150, 194, 361, 396.
Pine, 223, 396.
Rose-breasted, 134, 228, 359, 369, 372, 398, 403, 418.
Western Blue, 87, 151, 403, 418.
Western Evening, 87, 403, 416.
Grouse, Alaska Spruce, 68.
Blue-tailed, 25.
Canada, 303.
Canadian Ruffed, 393.
Columbian Sharp-tailed, 181, 411.
Dusky, 147.
Gray Ruffed, 393.
Prairie Sharp-tailed, 147, 411.
Richardson's, 5.
Ruffed, 26, 97, 132, 366.
Sage, 147, 171, 303.
Sharp-tailed, 393.
Grus americana, 286, 392.
canadensis, 67, 286, 392.
mexicana, 286, 409.
Guara alba, 284.
Guillemot, Black, 110, 237.
Guiraca cærulea, 359.
cærulea eurhynca, 87.
cærulea lazula, 151, 418.
Gull, Bonaparte's, 278, 391.
California, 277, 408.
Franklin's 278, 408.
Glaucous, 110.
Great Black-backed, 110.
Herring, 67, 110, 120–123, 277, 391, 437, 438.
Laughing, 124, 127, 278.
Ring-billed, 145, 278.
Sabine's, 278, 408.
Short-billed, 67.
Western, 277.
Gyrfalcon, Black, 429.
Gray, 394.
White, 201.

Haliæetus leucocephalus, 147, 191, 394.
Hallohippus, 103.
Hardy, John H., Jr., capture of the European Widgeon in New Hampshire, 304; see also Townsend, C. W.
Harelda hyemalis, 282, 392, 409.
Harlow, R. C., the Little Blue Heron in New Jersey, 189; the Yellow Rail at Salem, New Jersey, 190; Breeding of the Louisiana Water-Thrush in Philadelphia, 195; Wilson's Snipe wintering in Pennsylvania, 305; the Lesser Yellow-legs in Center County, Pennsylvania, 305.
Hartert, Ernst, notice of Part V of his 'Die Vögel der Paläarctischen Fauna,' 207.
Hawk, American Rough-legged, 147.
American Sparrow, 349, 366.
Black Pigeon, 303.
Broad-winged, 366, 394.
Cooper's, 6, 394.
Desert Sparrow, 6.
Duck, 147, 168.
Ferrugineous, 147.
Krider's, 147.
Marsh, 68, 147, 394.
Pigeon, 61, 68, 147.
Red-shouldered, 114, 147.
Red-tailed, 132, 366.
Richardson's Pigeon, 61, 147, 303, 394.
Rough-legged, 394.
Sharp-shinned, 6, 146, 366, 394.
Sparrow, 114, 147, 394.
Swainson's, 83, 147, 394.
Western Red-tailed, 147.
Helminthophila, 299.
chrysoptera, 135, 314, 360.
pinus, 360.
rubricapilla gutturalis, 8.
Helmitheros, 259.
migratorius, 259.
Helmitheros vermivorous, 356.
Helodromas solitarius, 61, 146, 289, 339.
solitarius cinnamomeus, 61, 146, 180, 410.
Hemipodius pugnax, 250.
Hen, Heath, 96.
Lesser Prairie, 181.
Marsh, 128.
Prairie, 147, 171.
Sage, 303.
Henninger, W. F., the American Golden Plover (*Charadrius dominicus*) in Ohio in autumn, 77; another Ohio record for *Oidemia deglandi*, 189.
Herodias, 300.
egretta, 409.
Herodiones, position of feet in flight, 111.
Heron, Black-crowned Night, 58, 60, 127, 286.
European, 303.
European Blue, 303.
Florida Great Blue, 168.
Great Blue 27, 111, 146, 285, 366, 392.
Green, 132, 146, 314, 409, 435.
Little Blue, 76, 83, 127, 189, 199.
Louisiana, 24.
Snowy, 180, 303, 409.
Yellow-crowned Night, 286, 409.
Herrick, Harold, late flight of Woodcock on Long Island, N. Y., 77.
Hersey, L. J., and Robert B. Rockwell, notice of their 'An Annotated List of the Birds of the Barr Lake District, Adams County, Colorado,' 445.
Hesperiphona vespertina, 150, 194, 396.
vespertina montana, 416.
Hesperornis, 243, 247.
Heteractitis incana, 67, 146.

Himantellus, 51.
Himantopus mexicanus, 287.
Hirundo erythrogastra, 8, 151, 201, 369, 398.
longipennis, 250, 251.
phenicephala, 260.
Histrionicus histrionicus, 67.
Hornaday, William T., notice of his 'Wild-Life Preservation' number of the 'Bulletin' of the New York Zoölogical Society, 335.
Horsfall, Bruce, European Starling nesting at Princeton, N. J., 430.
Hortulanus, 301.
Howard, H. Eliot, notice of his 'The British Warblers,' Part III, 323–326.
Howe, Reginald Heber, Jr., a curious influx of southern Herons in New Jersey, 76.
Howell, Arthur H., notes on the summer birds of northern Georgia, 129–137; *Agelaius phœniceus fortis* in Louisiana, 192.
Huhus, 34, 51.
Hummingbird, Allen's, 292.
Anna, 291, 292.
Black-chinned, 280.
Broad-tailed, 413.
Calliope, 6, 413.
Hybrid, 291–293.
Ruby-throated, 133, 280, 367, 395.
Rufous, 7, 413.
Hydranassa tricolor ruficollis, 24.
Hydrochelidon nigra surinamensis, 145, 278, 391.
Hydroprogne, 300.
Hylocichla aliciæ, 152, 399.
aliciæ bicknelli, 196, 312.
fuscescens, 85, 137, 370.
fuscescens salicicola, 399.
guttata, 70, 422.
guttata pallasi, 370, 399, 422, 436.
mustelina, 135, 153, 370, 407, 422.
Hylocichla ustulata, 370.
ustulata swainsoni, 9, 70, 85, 153, 399.

Ibis, White, 284.
White-faced, 284.
White-faced Glossy, 409.
Wood, 285, 409.
Icteria virens, 136, 352, 420.
virens longicauda, 63, 152.
Icterus bullocki, 7, 149, 415.
galbula, 133, 149, 358, 396, 415.
spurius, 149, 358, 401, 415.
Indigo-bird, 359.
Inezia, 446.
Ionornis martinica, 305.
Iridoprocne bicolor, 398.
Ixobrychus exilis, 24, 285.
Ixoreus nævius, 9.
nævius meruloides, 70
Ixosorus, 51.

Jaeger, Parasitic, 277.
Jay, Alaska, 69.
Black-headed, 7.
Blue, 133, 149, 368, 395, 403, 414.
Canada, 56, 149, 368, 395.
Piñon, 149, 182, 415.
Rocky Mountain, 7.
Woodhouse's, 182, 404, 415.
Jewett, Stanley G., some birds of Baker County, Oregon, 5–9.
Junco aikeni, 151, 182, 417.
hyemalis, 70, 151, 200, 357, 369, 397, 417.
hyemalis carolinensis, 85, 134.
hyemalis montanus, 62, 182, 417.
hyemalis oreganus, 405, 407, 417.
hyemalis shufeldti, 8, 62.
phæonotus caniceps, 151, 411.
Junco, 357.
Carolina, 134.
Gray-headed, 151, 417.

Junco, Montana, 182, 417.
Oregon, 417.
Shufeldt's, 8, 62.
Slate-colored, 70, 151, 200, 369, 397, 417.
White-winged, 151, 182, 417.

Kaeding, H. B., notice of his 'The Condor' Index, 334.
Kermode, Francis, notice of his 'The Provincial Museum of Natural History and Ethnology,' 334.
Kestril, 296.
Killdeer, 146, 222, 290, 366, 393.
Kingbird, 7, 133, 148, 182, 224, 355, 367, 395, 414.
Arkansas, 7, 148, 414.
Kingfisher, 243.
Belted, 6, 69, 132, 148, 367, 395.
Kinglet, Golden-crowned, 223, 370, 399.
Ruby-crowned, 9, 70, 228, 370.
Kittiwake, 277.
Knight, Ora Willis, notice of his 'The Birds of Maine,' 93.

Lagopus alexandræ, 204, 295.
dixoni, 204, 296.
lagopus, 68.
lagopus alexandræ, 295.
leucurus altipetens, 402.
leucurus peninsularis, 68.
rupestris, 68.
rupestris chamberlaini, 295.
rupestris dixoni, 296.
Laiscopus, 103.
Lanius borealis, 70, 152, 183, 398, 418.
ludovicianus excubitorides, 152.
ludovicianus gambeli, 62.
ludovicianus mearnsi, 296.
Lanivireo flavifrons, 135.
solitarius, 199.
solitarius alticola, 135.
solitarius cassini, 8, 183, 419.
solitarius plumbeus, 152, 419.
Lark, Desert Horned, 149, 414.
Horned, 357, 439.
Hoyt's Horned, 414.
Meadow, 357.
Pallid Horned, 62.
Prairie Horned, 368, 414.
Larus argentatus, 67, 277, 391, 438.
atricilla, 278.
brachyrhynchus, 67.
californicus, 277, 408.
delawarensis, 145, 278.
franklini, 278, 408.
occidentalis, 277.
philadelphia, 277, 391, 438.
vegæ, 302.
Leucophoryx, 300.
Leucosticte atrata, 416.
australis, 416.
sp., 69.
tephrocotis, 7, 150, 396, 416.
tephrocotis littoralis, 7.
Leucosticte = Rosy Finch, 303.
Leucosticte, Gray-crowned, 7, 150.
Hepburn's, 7.
Limicolæ, position of feet in flight, 112.
Limosa fedoa, 146, 289.
Lineocantor, 301.
Linnet, California, 303, 416.
Lobipes lobatus, 24, 146, 287, 327, 393.
Loggerhead, 361.
Longipennes, position of feet in flight, 110.
Longspur, Alaska, 69.
Chestnut-collared, 150, 416.
Lapland, 150, 397.
McCown's, 150, 416.
Smith's, 150.
Loon, 145, 235, 244, 246, 277, 366, 391.
Red-throated, 235.
Yellow-billed, 277.
Lophodytes cucullatus, 145, 279.
Lophortyx californicus, 180, 411.
catalinensis, 300.

Loxia curvirostra minor, 7, 150, 432.
curvirostra sitkensis, 204, 301.
leucoptera, 396, 416.
Lyre Birds, protection of, 456.

MacFarlane, Roderick, notice of his 'Through the Mackenzie Basin,' 92.
Machetes, 297.
pugnax, 297.
Macrochires, position of feet in flight, 115.
Macropteryx (Hemiprocne) longipennis, 251.
Macrorhamphus scolopaceus, 288.
Maculocantor, 301.
Magpie, American, 7, 69, 149.
Black-billed, 69.
Mallard, 67, 145, 201, 242, 247, 280, 391.
Man-o'-war-bird, 170, 205, 302.
Marble, Richard Merrill, notes from Crawford Notch, N. H., 437; notice of his 'List of Birds' found at the Crawford House, N. H., 446.
Mareca americana, 145, 280.
penelope, 186–188, 304.
Marila affinis, 145, 281, 392, 401, 409.
americana, 281, 392, 401, 408.
collaris, 281, 392, 409.
marila, 281, 439.
vallisneria, 145, 392, 401, 408
Martin, 351.
House, 446.
Purple, 135, 151, 183, 369, 418.
McGregor, Richard C., announcement of his 'Manual of Philippine Birds,' 334; notice his paper on 'Birds from Mindanao,' 445; notice of his 'Philippine Ornithological Literature,' II, 445.
McKetchnie, P. B., *Dendroica discolor* and *D. vigorsi* in eastern Massachusetts in winter, 195; unusual records for Massachusetts, 198–200.
Meadowlark, 149, 222, 224, 307, 368, 372, 430.
Western, 7, 149, 396.
Mearns, Edgar A., mention of in 'Notes and News,' 108, 220; notice of his 'Additions to the List of Philippine Birds,' etc., 326; notice of his 'A List of the Birds collected by Dr. Paul Bartsch in the Philippine Islands,' etc., 327.
Melanerpes erythrocephalus, 133, 367, 431.
Meleagridæ, 297.
Meleagris gallopavo, 78, 191.
gallopavo merriami, 411.
gallopavo osceola, 25.
gallopavo silvestris, 25, 132, 411.
Melospiza cinerea phæa, 302.
georgiana, 151, 182, 357, 397, 417.
lincolni, 8.
melodia, 151, 369, 397.
melodia fallax, 321.
melodia gouldi, 301, 321.
melodia maxillaris, 296, 321.
melodia merrilli, 8.
melodia rufina, 200.
melodia saltonis, 301, 321.
Merganser, American, 5, 145, 240, 279, 391.
Hooded, 145, 279.
Red-breasted, 180, 240, 246, 279, 366, 391, 408.
Mergus americanus, 5, 145, 279, 391.
serrator, 180, 279, 366, 391, 408.
Merlin, Black, 303.
Richardson's, 147, 303.
Merriam, C. Hart, notice of his Report of the Bureau of Biological Survey for 1908, 101.

Merula migratoria, 153.
Micropalama himantopus, 146, 882.
'Midland Naturalist,' notice of, 333.
Miller, Charles W., notice of his 'An Experiment in the Colonization of the House Martin,' 446.
Miller, Richard F., *Actodromas fuscicollis* in Philadelphia Co., Pa., 427.
Miller, Waldron DeWitt, the races of the Parula Warbler, 309; the rank of certain groups of birds, 313.
Milvus leucomelas, 260.
Mimus polyglottos, 136, 350, 354, 432.
polyglottos leucopterus, 152, 420.
Mniotilta varia, 93, 135, 369, 398, 419, 432.
Mockingbird, 136, 350, 354, 433, 438.
Mountain, 420.
Western, 152, 420.
Molothrus ater, 7, 149, 368, 396.
Moor-hen, English, 243
Morocus, 52.
Morphnus, 300.
Morris, Robert O., rare birds near Springfield, Mass., 84; the Starling near Springfield, Mass., 306.
Motacilla blackburniæ, 300.
erythrourus, 253.
fusca, 300.
Murre, 237.
Brünnich's, 59.
Muscadivores, 103.
Muscivora, 51.
Mycteria americana, 285, 409.
Myiadestes townsendi, 153, 185, 421.
Myiarchus cinerascens, 87, 414.
crinitus, 133.
Myiochanes richardsoni, 7, 149, 395.
virens, 133, 367, 407, 414.
Myrmelastes, 321.
ceterus, 321.
Myrmelastes corvinus, 321.
exsul occidentalis, 98.
lawrencei, 321.
Myrmotherula axillaris, 98.

Nannus hiemalis, 370.
hiemalis pacificus, 9.
National Association of Audubon Societies, notice of the President's Report for 1908, 100; Fourth Annual Meeting of, 106.
Nelson, E. W., notice of his 'A new Thrush from Mexico,' 321.
Nettion carolinensis, 67, 145, 280, 391.
Nighthawk, 133, 355, 367.
Western, 6, 148, 395.
Nomonyx dominicus, 189.
Norton, Arthur H., the Lesser Snow Goose (*Chen hyperborea nivalis*) in Gorham, Maine, 304; the present status of the Meadowlark (*Sturnella magna*) near Portland, Maine, 307; another Hoary Redpoll (*Acanthis hornemanni exilipes*) at Westbrook, Maine, 308; Bicknell's Thrush (*Hylocichla aliciæ bicknelli*) in Cumberland County, Maine, 312; the food of several Maine Water-Birds, 438–440.
Notiomystis, 103.
Nucifraga columbiana, 7, 62, 149.
Numenius americanus, 290.
aterrimus, 255.
borealis, 77.
hudsonicus, 68, 290.
longirostris, 146.
phæopus, 190.
Nutcracker, Clarke's, 62, 149.
Nuthatch, Pygmy, 9, 184.
Red-breasted, 9, 152, 198, 199, 223, 370, 399.
Rocky Mountain, 9, 421.
Slender-billed, 152.
White-breasted, 136.

Nuttallornis borealis, 7.
Nyctanassa violacea, 286, 409.
Nyctea nyctea, 68, 148, 316, 394.
Nycticorax nycticorax nævius, 58, 60, 286.

OBERHOLSER, Harry C., notice of his 'A List of the principal Birds to be found in Alabama,' 206; notice of his 'Revision of the Kingfisher Genus *Ramphalcyon* (*Pelargopsis*),' 206.
Oceanitinæ, 313.
Oceanodroma castro, 296.
leucorhoa, 84.
monorhis, 302.
socorroensis, 302.
Odontoglossæ, position of feet in flight, 111.
Odontophorinæ, 297.
Oidemia americana, 59, 282, 392.
deglandi, 59, 189, 283, 392, 409.
perspicillata, 59, 283, 392.
Old-Squaw, 240, 241, 282, 392, 409.
Olor buccinator, 284.
columbianus, 284.
Oporornis formosa, 136.
philadelphia, 85.
tolmiei, 420.
Oreospiza chlorura, 8, 418.
Oriole, Baltimore, 133, 149, 358, 372, 396, 415.
Bullock's, 7, 149, 415.
Orchard, 149, 358, 415.
Oroscoptes montanus, 8, 63, 152, 420.
Osgood, Wilfred H., note respecting, 454.
Osprey, American, 6, 113, 148, 366.
Otocoris alpestris arcticola, 62.
alpestris arenicola, 414.
alpestris enertera, 300.
alpestris hoyti, 414.
alpestris leucolæma, 149, 414.
alpestris praticola, 368, 407, 414.
Otus asio, 132, 148.
asio kennicotti, 61.
asio maxwelliæ, 412.
flammeola, 87, 181, 412.
flammeola idahoensis, 61.
Ouzel, Water, 70, 247, 402.
Ouzels, 243.
Ovenbird, 136, 356, 369, 399, 420.
Owl, American Hawk, 68.
American Long-eared, 78, 148.
Arctic Horned, 412.
Barn, 315, 313, 412, 438.
Barred, 366, 412.
Burrowing, 148, 320.
Dwarf Screech, 61.
Flammulated Screech, 87, 181, 403, 412.
Great Horned, 6, 58, 114, 132.
Hawk, 394.
Horned, 68.
Kennicott's Screech, 61.
Northwestern Spotted, 313.
Richardson's, 68, 280.
Rocky Mountain Screech, 404, 412.
Saw-whet, 394.
Screech, 132, 148.
Short-eared, 68, 148, 394.
Spotted, 412.
Snowy, 68, 148, 316, 394.
Western Horned, 148, 394, 405.
Oxyechus vociferus, 146, 290, 366, 393.

PACHYRHAMPHUS marcidus, 446.
Palæornis torquatus, 114.
Paludicolæ, position of feet in flight, 112.
Palmer, T. S., the Black Rail (*Creciscus jamaicensis*) in the District of Columbia, 190; the Black Rail in Maryland, 427.
Palmer, William, instinctive stillness in birds, 23–36.
Pandion haliaëtus carolinensis, 6, 148, 366.

Pandionidæ, 298.
Pandioninæ, 298.
Pangborn, Clifford H., the Carolina Wren at New Haven, Conn., 195; unusual dates for some birds at New Haven, Conn., 198.
Partridge = Quail, 333.
Partridge, California, 180.
Scaled, 86.
Spruce, 303, 428.
Parula, 353.
Parulus, 51.
Parus atricapillus, 56.
Passerculus sandwichensis alaudinus, 397.
Passer, 51.
domesticus, 13–19, 57,7 7, 368, 398.
Passerella iliaca, 70, 398.
iliaca insularis, 200.
iliaca meruloides, 200.
iliaca schistacea, 8, 417.
Passeres, position of feet in flight, 115.
Passerherbulus, 299.
caudacutus, 299.
henslowi, 299.
henslowi occidentalis, 299.
lecontei, 299.
maritimus, 299.
maritimus fisheri, 299.
maritimus macgillivrayi, 299.
maritimus peninsulæ, 299.
maritimus sennetti, 299.
nelsoni, 299.
nelsoni subvirgatus, 299.
nigrescens, 299.
Passerina amœna 151, 359.
ciris, 359.
cyanea, 134, 151, 359, 369, 418.
Pavianus, 51.
Pavoncella, 297.
pugnax, 77.
Pearson, Leonard S., breeding of the Least Bittern (*Ardetta exilis*) in Chester Co., Pa., 426.
Pediœcetes phasianellus, 58, 393.
Pediœcetes phasianellus campestris, 147, 181, 411.
phasianellus columbianus, 401, 407, 411.
Pelargopsis, 206.
Pelecanus erythrorhynchos, 145, 185, 204, 279.
Pelican, Brown, 116, 169.
White, 117, 145, 185, 204, 279.
Pelidna alpina sakhalina, 289.
Penguins, 238, 244, 245.
Pennock, C. J., early nesting of the Barn Owl in Delaware, 305; late records for Siskins in Chester County, Pa., 308.
Penthestes atricapillus, 370, 399.
atricapillus septentrionalis, 9, 153.
carolinensis, 136.
gambeli, 9.
hudsonicus, 70, 399.
Perdicinæ, 297.
Perisoreus canadensis, 56, 149, 368, 395.
canadensis capitalis, 7.
canadensis fumifrons, 69.
Petrel, Diving, 245.
Hawaiian, 296.
Leach's, 111, 123.
Storm, 302.
Stormy, 302.
Wilson's, 111.
Petrochelidon lunifrons, 70, 151, 357, 398.
Peucæa æstivalis bachmani, 134.
cassini, 401, 404, 407, 417.
Pewee, Capped, 238.
Western Wood, 7, 149, 395.
Wood, 133, 354, 367, 414.
Phæornis rutha, 100.
Phalacrocorax auritus, 279.
vigua mexicanus, 279, 407, 408.
Phalænoptila nuttalli, 6, 148.
nuttalli nitidus, 401.
Phalarope, Northern, 24, 146, 287, 393.
Red, 146, 409, 437.

Phalarope, Wilson's, 146, 287, 393.
Phalaropus fulicarius, 146, 407, 409.
Phasianidæ, 297.
Pheasant, Ring-necked, 447.
Philohela minor, 26, 77, 132, 287, 393.
Phlœotomus pileatus, 133.
pileatus abieticola, 6.
Phœbe, 133, 149, 199, 353, 367, 395.
Say's, 7, 69, 149, 395.
Piaya, 209.
cayana, 209.
cayana boliviana, 209.
cayana caucæ, 209.
circe, 209.
macroura, 209.
Pica pica hudsonica, 7, 69, 149.
Piceacantor, 301.
Pici, position of feet in flight, 114.
Picoides americanus fumipectus, 204, 300.
arcticus, 6, 395.
americanus fasciatus, 69.
(Dinopium)erythronotus, 250.
Pigeon, Band-tailed, 87.
Passenger, 429.
Pinacantor, 301.
vigorsii florida, 302.
Pinicola enucleator alascensis, 69.
enucleator leucura, 396.
Pintail, 145, 201, 281, 392.
Pipilo consobrinus, 320.
erythrophthalmus, 134, 151, 354, 369.
fuscus mesoleucus, 182, 418.
maculatus, 151.
maculatus montanus, 8, 417.
Pipit, 399.
American, 70, 152, 171.
Sprague's, 152.
Piranga erythromelas, 135, 358, 369, 418.
ludoviciana, 8, 151, 361, 398, 418.
rubra, 135, 308.
Pisobia bairdi, 67, 146, 288.
Pisobia fuscicollis, 288.
maculata, 146, 288.
minutilla, 146, 288.
Planesticus fumigatus aquilonalis, 446.
migratorius, 70, 370, 400.
migratorius achrustera, 137.
migratorius caurinus, 204, 302.
migratorius propinquus, 9, 196–198.
Plectrophenax nivalis, 57, 69, 150, 352, 397.
Plegadis guarauna, 284, 409.
Plover, American Golden, 76, 290.
Black-bellied, 68, 290.
Golden, 410.
Grass, 222.
Little Ring, 303.
Little Ringed, 303.
Mountain, 290, 410.
Piping, 402, 410.
Ring, 303.
Ringed, 303.
Semipalmated, 68, 290, 410, 437.
Upland, 68, 303, 393, 410.
Podasocys montanus, 290, 410
Podilymbus podiceps, 145, 277, 391.
Pogonornis, 103.
Polyborinæ, 298, 313.
Polyborus lutosus, 320.
Polioptila cærulea, 82, 136, 356, 370.
cærulea obscura, 184, 421.
Pœcetes gramineus, 368.
gramineus confinis, 150, 397.
Poor-will, 6, 148.
Porzana carolina, 21, 86, 146, 287, 314, 393, 409.
jamaicensis, 427.
noveboracensis.
Preble, Edward A., notice of his 'A Biological Investigation of the Athabasca-Mackenzie Region,' 90–92.
Prinia familiaris, 251.
Priofinus gelidus, 95.

Prion spp., 323.
Progne subis, 135, 151, 183, 369, 418.
Protonotaria citrea, 309, 419.
Psaltriparus plumbeus, 184, 420.
Psittaci, position of feet in flight, 114.
Psoridus, 51.
Ptarmigan, Adak, 295.
Alaska White-tailed, 68.
Alexander's, 295.
Dixon's 296.
Rock, 68.
White-tailed, 171.
Willow, 86.
Publications Received, 104, 214, 330, 448.
Puffinidæ, 313.
Puffininæ, 313.
Pygopodes, position of feet in flight, 110.

Quail, 303.
California, 411.
Mearns's, 323.
Scaled, 410.
Quaxotus, 52.
Querquedula cyanoptera, 280.
discors, 145, 280, 392.
Quiscalis, 52.
Quiscalus quiscula, 353.
quiscula æneus, 150, 368, 396.

Rafinesque, C. S., reprint of his ornithological writings, 37–55, 248–262; list of the new bird genera proposed in his 'Analyse,' 52–55.
Rail, Black, 190, 287, 427.
Carolina, 409.
Clapper, 76, 128.
King, 35.
Sora, 21, 86, 112, 146, 201, 287, 314, 393.
Virginia, 19, 112, 146, 286, 393, 409.
Rail, Yellow, 1–5, 190, 314.
Rallus crepitans, 76.
elegans, 35.
noveboracensis, 1.
virginianus, 19, 146, 286, 393, 409.
Ramphalcyon, 206.
Ramphosteon, 259.
Raptores, position of feet in flight, 113.
Raven, American, 87, 149, 303.
Northern, 56, 69, 133, 368, 396.
Western, 303.
Reed, Charles K., notice of his 'Bird Guide,' 446.
Recurvirostra americana, 60, 146, 286.
Redbird, Summer, 358.
Redhead, 240, 281, 392, 408.
Redpoll, 57, 69, 150, 316, 358, 396.
Hoary, 150, 308.
Redstart, 351, 399, 420, 435.
American, 152, 183, 370.
Red-tail, Alaska, 296.
Western, 6, 394.
Red-wing, Bicolored, 303.
Northern, 415.
San Diego, 415.
Thick-billed, 396, 415.
Tricolored, 303.
Regulus calendula, 9, 70, 370.
satrapa, 85, 370, 399.
'Revue Française d'Ornithologie, notice of, 334.
Rhantistes, 300.
Rhynchocyclus sulphurescens, 320.
sulphurescens exortivus, 320.
Rhynchophanes mccowni, 150, 416.
Richmond, Charles W., a reprint of the ornithological writings of C. S. Rafinesque: Part I, 37–55; Part II, 248–262; notice of his 'Generic Names applied to Birds during the years 1901 to 1905,' etc., 102.
Ridgway, Robert, notice of his

'New Genera, Species and Subspecies of Formicariidæ, Furnariidæ, and Dendrocolaptidæ,' 321; hybridism and generic characters in the Trochilidæ, 440–442; announcement of a new edition of his 'Nomenclature of Colors,' 450; [transfer of the Division of Birds to the new U. S. National Museum], 454.
Rimamphus, 258, 259.
citrinus, 258.
Riparia riparia, 70, 151, 369, 398.
Rissa tridactyla, 277.
Road-runner, 181, 412.
Roberts, Thos. S., the Prairie Falcon (*Falco mexicanus*) in western Minnesota, 191; a study of a breeding colony of Yellow-headed Blackbirds; including an account of the destruction of the entire progeny of the colony by some unknown natural agency, 371–389.
Robin, 70, 115, 153, 196–198, 223, 370, 400.
American, 348.
Carolina, 137.
Western, 9.
Rockwell, Robert B., notice of his 'An Annotated List of the Birds of Mesa County, Colorado,' 99; see also Hersey, L. J.
Roosevelt Expedition to East Africa, 220.
Ruff, 77, 297.

Sage, John H., Twenty-sixth Stated Meeting of the American Ornithologists' Union, 71–75; the Black Gyrfalcon in Connecticut, 429.
Salpinctes obsoletus, 8, 152.
Sanderling, 289, 410, 427, 437.
Sandpiper, Baird's, 67, 146, 288.
Sandpiper, Bartramian, 146, 180, 290, 303.
Common, 34.
Least, 146, 288.
Pectoral, 146, 288.
Pribylov, 23.
Red-backed, 289.
Semipalmated, 289.
Solitary, 61, 146, 289, 393.
Spotted, 5, 23, 68, 146, 290, 366, 393.
Stilt, 146, 288.
Upland, 68.
Western, 289, 410.
Western Solitary, 61, 180, 410.
White-rumped, 288, 427, 428.
Sapsucker, Red-naped, 6.
Williamson's, 6, 61.
Yellow-bellied, 198, 367, 395.
Saunders, W. E., the third specimen of the Summer Tanager for Canada, 308; the Acadian Flycatcher in Ontario, 430.
Sayornis fuscus, 353.
phœbe, 133, 149, 199, 367, 395.
saya, 7, 69, 149, 395.
Scaup, Greater, 240.
Lesser, 240.
Ring-necked, 240.
Scaups, 439.
Sclater, W. L., notice of his 'The Winter Birds of Colorado,' 206.
Scolecophagus carolinus, 368.
Scoter, American, 59, 240, 241, 282, 392.
Surf, 59, 240, 241, 283, 392.
White-winged, 59, 189, 240, 241, 283, 392, 409.
Scotothorus versæpacis dumicola, 320.
Seiurus aurocapillus, 136, 356, 369, 399, 420.
motacilla, 136, 195, 310, 361.
noveboracensis, 195, 369.
noveboracensis notabalis, 399.
Selasphorus alleni, 291, 292, 293.

Selasphorus floresii, 291, 292, 293, 413, 440
platycercus, 413.
rufus, 7, 293, 413, 440.
Setophaga ruticilla, 152, 183, 370, 399, 420.
Shags, 239.
Shearwater, Dark-bodied, 302.
Sooty, 302.
Sheldon, Charles, list of birds observed on the Upper Toklat River near Mt. McKinley, Alaska, 1907–1908, 66–70.
Shoveller, 145, 281, 392.
Shrike, California, 62.
Northern, 70, 152, 183, 398, 418.
San Clemente, 296.
White-rumped, 152.
Shufeldt, R. W., where the skeletons of American birds may be studied, 217; notice of his 'Osteology of Birds,' 329; avian osteology and game bird protection, 450–452.
Sialia currucoides, 9, 153, 185, 400, 422.
mexicana bairdi, 185, 422.
mexicana occidentalis, 9.
sialis, 83, 137, 153, 370, 422.
Siskin, 35.
Pine, 8, 150, 192, 223, 308, 368, 397.
Sitta canadensis, 9, 153, 199, 370, 399.
carolinensis, 136.
carolinensis aculeata, 152.
carolinensis nelsoni, 9, 421.
pygmæa, 9, 184.
Skimmer, Black, 117, 127.
Snipe, Wilson's, 67, 86, 146, 288, 305, 393, 410.
Great, 303.
Greater, 303.
Snowbunting, 397.
Snowflake, 57, 69, 150.
Snowflake = Snow Bunting, 303.
Solitaire, Townsend's, 153, 185, 421.
Somateria dresseri, 282, 426.
spectabilis, 59, 201.
Sora, see Rail.
Spatula clypeata, 145, 281, 392.
Sparrow, Acadian Sharp-tailed. 299.
Aleutian Savannah, 303.
Baird's, 150, 298.
Belding's, 303.
Belding's Marsh, 303.
Brewer's, 417.
Bryant's, 303.
Bryant's Marsh, 303.
Cassin's, 403, 404, 417.
Chipping, 134, 224, 227, 229, 354, 368, 397, 416.
Clay-colored, 151, 397, 417.
Desert, 417.
Dusky, 299.
English, 13–19, 57, 78, 115, 322, 368, 398, 437, 447.
European Tree, 322.
Field, 134, 227, 228, 229, 357, 368.
Florida Grasshopper, 299.
Fox, 70, 198, 359, 398.
Golden-crowned, 69, 416.
Grasshopper, 134, 222, 299, 432.
Harris's, 150, 416.
Henslow's, 29, 299.
House, 322, 368.
Intermediate, 62, 69.
Kadiak Fox, 200.
Lark, 80.
Leconte's, 80, 299.
Lincoln's, 8.
Louisiana Seaside, 299.
Macgillivray's Seaside, 299.
Merrill's Song, 8.
Nelson's, 299, 397.
Sage, 89, 403, 417.
Sandwich, 303.
Savanna = Savannah, 303.
Savannah, 222, 223, 361, 438.

Sparrow, Scott's, 403, 417.
Scott's Seaside, 299.
Seaside, 299.
Sharp-tailed, 299.
Slate-colored, 8, 417.
Song, 151, 223, 354, 369, 397, 435.
Sooty Song, 200.
Suisun Song, 296.
Swamp, 151, 182, 357, 397, 417.
Texas Seaside, 299.
Townsend's, 303.
Townsend's Fox, 303.
Tree, 352.
Vesper, 222, 224, 228, 354, 368, 372.
Western Chipping, 150, 416.
Western Field, 314, 417.
Western Grasshopper, 62, 150, 299.
Western Henslow's, 299.
Western Lark, 62, 150.
Western Savannah, 397.
Western Tree, 69, 150, 397.
Western Vesper, 150, 397.
White-crowned, 150, 359, 397, 402.
White-throated, 150, 198, 223, 359, 368, 397, 416.
Yellow-winged, 354.
Speotyto cunicularia becki, 300, 320.
cunicularia hypogæa, 148.
Sphyrapicus thyroides, 6, 61.
varius, 84, 367, 395.
varius nuchalis, 6.
Spinus pinus, 8, 150, 192, 308, 368, 397, 432.
Spiza americana, 134, 151, 359, 418.
townsendi, 269–272.
Spizella breweri, 62, 151, 417.
monticola, 352.
monticola ochracea, 69, 150, 397.
pallida, 151, 397, 417.
Spizella passerina, 134, 368, 397, 401, 416.
passerina arizonæ, 8, 150, 416.
pusilla, 134, 369.
pusilla arenacea, 314, 407, 417.
Spoonbill, Roseate, 117.
Sporæginthus, 103.
Squatarola squatarola, 68, 290.
Starling, 84, 306, 430.
Stansell, Sidney S. S., Birds of Central Alberta, 390–400.
Steganopodes, position of feet in flight, 111.
Steganopus tricolor, 146, 287, 393.
Stelgidopteryx serripennis, 151.
Stellula calliope, 6, 293, 413, 414.
Stercorarius parasiticus, 277.
Sterna forsteri, 278, 391, 408.
fuliginosa, 209–214.
fuscata, 437.
hirundo, 34, 314, 391, 407, 408.
longipennis, 327.
paradisæa, 67, 278, 391.
Stilt, Black-necked, 287.
Stone, Witmer, notice of his 'A Review of the Genus *Piaya* Lesson,' 209.
Striges, 313.
Strix funerea, 298.
occidentalis, 412.
occidentalis caurinum, 313.
tengmalmi, 298.
varia, 366, 412.
Sturnella magna, 149, 307, 368, 430.
magna neglecta, 396.
neglecta, 7, 149.
Sturnus vulgaris, 84, 306, 430.
Sula fusca, 205.
leucogastra, 205.
piscator, 205.
Surf-Bird, 303.
Surf-bird, 303.
Surnia ulula caparoch, 69, 394.
Swales, B. H., see Taverner, P. A.
Swallow, Bank, 70, 151, 357, 369, 398.

Swallow, Barn, 8, 115, 151, 201, 224, 357, 369, 398.
Cliff, 70, 151, 224, 357, 398.
Eave, 115, 357.
Rough-winged, 151.
Tree, 115, 224, 358, 398.
Violet-green, 8, 151.
Swan, Trumpeter, 284.
Whistling, 284.
Whooper, 302.
Whooping, 302.
Swarth, H. S., notice of his 'Distribution and Molt of the Mearns Quail,' 323.
Swift, Black, 413.
Chimney, 133, 148, 198, 357, 367.
Vaux's, 6.
White-throated, 62, 148, 181, 413.
Sylvania mitrata, 360.
Sylvia atricapilla, 324.
azuricollis, 255.
capinera, 254.
cuneata, 251, 256.
fulva, 254.
jucindis, 254.
meleuca, 255.
rhodogastra, 254.
solitaria, 299.
turdella, 254.
xanthogastra, 254.
Sylviocantor, 301.
Symphemia, 259.
melanura, 259.
Tachycineta thalassina lepida, 8, 151.
Tanager, Louisiana, 8, 151, 303.
Scarlet, 135, 358, 369, 418.
Summer, 135, 308.
Western, 8, 151, 303, 398, 418.
Thalasseus, 300.
Tanagra, 103.
Tangara, 103.
Tangavius æneus involucratus, 307.
Tanygnathus megalorhynchus, 327.
Tattler, Wandering, 67, 146.
Taverner, P. A., two Michigan records, 83.
Taverner, P. A., and B. H. Swales, notice of their 'The Birds of Point Pelee,' 98.
Taylor, Thorne C., Hubbard Woods and Walter T. Fisher, capture of a Bald Eagle near Chicago, Ill., 191.
Taylor, Walter P., an instance of hybridization in Hummingbirds, with remarks on the weight of generic characters in the Trochilidæ, 291–293.
Teal, Blue-winged, 145, 280, 392.
Cinnamon, 280.
Green-winged, 67, 145, 280, 391.
Telmatodytes palustris thryophilus, 302.
Tern, Arctic, 67, 278, 391, 439.
Black, 145, 278, 391.
Common, 34, 111, 119, 314, 391, 408.
Forster's, 278, 391, 408.
Least, 119.
Noddy, 209–214.
Royal, 118.
Sooty, 209–214, 437.
Terracantor, 301.
Tetraonidæ, 297.
Tetraoninæ, 297.
Thayer, John H., capture of the Ruff at Seabrook, N. H., 77; Eskimo Curlew taken at Newburyport, Mass., 77.
Thayer, John E., and Outram Bangs, notice of their 'The present state of the Ornis of Guadaloupe Island,' 319; notice of their 'Description of a new Subspecies of the Snowy Heron,' 321.
Thrasher, Brown, 136, 152, 228, 370.
Sage, 8, 63, 404.

Thraupis, 103.
Thrush, Alaska Hermit, 422.
Bicknell's, 196, 312.
Dwarf Hermit, 70.
Ferruginous, 350.
Gray-cheeked, 153, 230, 400.
Hermit, 198, 223, 357, 370, 400, 422, 435.
Olive-backed, 9, 70, 153, 223, 370, 400.
Pale Varied, 70.
Song, 349.
Varied, 9.
Willow, 399.
Wilson's, 137, 303, 370.
Wood, 136, 153, 230, 357, 370, 421.
Thryomanes bewicki, 85, 136, 152.
bewicki bairdi, 88, 184, 312, 421.
bewicki cryptus, 184, 311, 312, 420.
bewicki eremophilus, 312.
brevicauda, 320.
Thryothorus ludovicianus, 81, 28, 136, 195, 263–269, 360, 434.
Tiaris, 301.
Tiga javanensis, 250.
Tinker, A. D., the Carolina Wren in Washtenaw County, Mich., 434.
Titlark, 70.
Titmouse, Black-cap, 361.
Gray, 184, 421.
Tufted, 136, 230.
Totanus flavipes, 146, 289, 305, 393.
melanoleucus, 289, 393.
melanoleucus frazari, 302.
Towhee, 134, 151, 198, 354, 369.
Arctic, 151.
Cañon, 182, 418.
Green-tailed, 8, 418.
Guadalupe, 320.
Mountain, 8, 417.
Townsend, Charles W., some habits of the English Sparrow (*Passer domesticus*) 13–19; the position of birds' feet in flight, 109–116; Labrador notes, 201; the use of the wings and feet by diving birds, 234–248; a Carolina Wren invasion of New England, 263–269.
Townsend, Charles W., and John H. Hardy, Jr., a note on the English Sparrow (*Passer domesticus*), 78.
Toxostoma rufum, 136, 152, 350, 370.
Tree-Duck, Fulvous, 304.
Tringa picta, 253.
semipalmata, 259.
Trochilus, 298.
alexandri, 293, 298.
colubris, 133.
Troglodytes aëdon, 370, 399.
aëdon parkmani, 9, 152.
Tropic-bird, 302.
Trotter, Spencer, the geographical and geological relations of the land-bird fauna of northeastern America, 221–233; an inquiry into the history of the current English names of North American Birds, 346–362.
Tubinares, position of feet in flight, 111.
Turdus fuscescens, 355.
iliacus, 301.
philomelos, 301.
merula, 349.
musicus, 349.
Turkey, Florida, 302.
Florida Wild, 27, 302.
Merriam's, 411.
Water, 168.
Wild, 25, 31, 78, 132, 168, 191, 411.
Turnix javanica, 250, 256.
pugnax, 250.
Turnstone, 291.
Ruddy, 410.
Tympanuchus americanus, 147, 411.

Tympanuchus cupido, 97.
pallidicinctus, 181, 411.
Tyrannus, 51.
tyrannus, 7, 133, 148, 367, 395, 414.
verticalis, 7, 148, 414.

Uria lomvia, 59.
Urinator immer, 366.
Urubitinga, 300.

Van Oort, E. D., notice of his paper on the Avifauna of the Netherlands, 207.
Veery, 230, 303, 355.
Vermivora, 299.
bachmani, 299.
celata, 300.
celata lutescens, 300.
celata sordida, 300.
chrysoptera, 299, 407, 419.
luciæ, 299.
peregrina, 300, 399, 419.
pinus, 299, 337–345.
rubricapilla, 300.
rubricapilla gutturalis, 300.
virginiæ, 300, 419.
Vireo belli, 401, 403, 407, 419.
huttoni oberholseri, 301.
noveboracensis, 135.
vicinior, 405, 407, 419.
Vireo, Bell's, 403, 419.
Cassin's, 8, 183, 419.
Gray, 419.
Mountain Solitary, 135.
Philadelphia, 398.
Plumbeous, 152, 419.
Red-eyed, 135, 369, 398, 418.
Solitary, 199, 223.
Warbling, 372.
Western Warbling, 8, 152, 398.
White-eyed, 135, 435.
Yellow-throated, 135.
Vireocantor, 301.
Vireosylva gilva swainsoni, 8, 125, 398.
olivacea, 135, 369, 398, 418.
Vireosylva philadelphica, 398.
Visher, Stephen Sargent, a list of the birds of western South Dakota, 144–153; the capture of the Red-eyed Cowbird in Arizona, 307.
Vulture, Black, 315.
Turkey, 6, 28, 132, 147, 315, 352.

Warbler, Audubon's, 8, 152.
Bachman's, 299.
Bay-breasted, 360.
Black-and-White, 93, 135, 223, 369, 398, 419, 433.
Blackburnian, 135, 199, 300, 361.
Black-poll, 70, 80, 152, 360, 369, 399.
Black-throated Blue, 360, 419.
Black-throated Gray, 183, 420.
Black-throated Green, 80, 135, 369.
Blue-winged Yellow, 299, 360.
Blue Yellow-backed, 353.
Cerulean, 360.
Cairns's, 135.
Calaveras, 300.
Canadian, 370.
Chestnut-sided, 199, 223, 360.
Connecticut, 437.
Dusky, 300.
Golden-winged, 135, 299, 314, 419.
Grace's, 183, 420.
Green Black-throated, 360.
Hooded, 136, 360.
Kentucky, 136.
Lucy's, 299.
Lutescent, 300.
Macgillivray's, 8, 152, 302, 399, 420.
Magnolia, 223, 356, 399, 420.
Mourning, 354.
Myrtle, 94, 195, 223, 356, 399, 419, 433.
Nashville, 223, 300.

Warbler, New York, 356.
Northern Parula, 199, 419.
Orange-crowned, 300, 360.
Palm, 316, 356.
Parula, 309.
Pileolated, 70.
Pine, 136.
Pine-creeping, 356.
Prairie, 195, 356, 432.
Prothonotary, 309, 360, 419, 435.
Sonora Yellow, 419.
Tennessee, 300, 399, 419.
Tolmie's, 303.
Townsend's, 183, 420.
Virginia's, 300, 419.
Worm-eating, 356.
Yellow, 8, 135, 152, 201, 223, 359, 369, 399.
Yellow Redpoll, 223.
Yellow-rumped, 70.
Yellow-throated, 360.
Warren, Edward R., notice of his 'Notes on the Birds of southwestern Montrose County, Colorado,' 206; concerning *Thryomanes bewicki cryptus* in Colorado, 311.
Water-Thrush, 361, 369.
Grinnell's, 399.
Louisiana, 136, 195, 310.
Water-Turkey, 302.
Watson, John B., notice of his 'The Behavior of Noddy and Sooty Terns,' 209–214.
Waxwing, Bohemian, 8, 10–12, 151, 398, 418.
Cedar, 151, 369, 398.
Weber, J. A., the Virginia and Sora Rails nesting in New York City, 19–22; the capture of the Short-billed Marsh Wren on Long Island, N. Y., 82; Blue-gray Gnatcatcher in Washington County, N. Y., 82.
Wetmore, Alex., notice of his 'Notes on some northern Arizona Birds,' 206.
Wharton, William P., the Clapper Rail in Essex County, Mass., 76.
Whimbrel, 190.
Whip-poor-will, 133, 355, 367, 403, 413.
Whistler, 240, 241, 439.
Widgeon, American, 187.
European, 186, 304.
Widmann, Otto, a second record for the Fulvous Tree-Duck taken in Missouri, 304; notice of his 'The Summer Birds of Shaw's Garden,' 322.
Willet, 128.
Western, 146, 290.
Wilsonia canadensis, 370.
citrina, 136.
pusilla pileolata, 70.
Witherby, H. F., reprint of his circular relating to his scheme for marking migrant birds, 332, 333.
Wolcott, Robert H., notice of his 'An Analysis of Nebraska's Bird Fauna,' 447.
Wood, J. Claire, Pine Siskins and winter Bobolinks, 192; first appearance of the Sanderling in the vicinity of Detroit, 427.
Wood, Norman A., notes on the occurrence of the Yellow Rail in Michigan, 1–5.
Woodcock, 26, 77, 132, 287, 390, 393.
Woodpecker, Alaska Downy, 69.
Alaska Three-toed, 69.
Arctic Three-toed, 6, 395.
Downy, 133, 367, 412.
Hairy, 57, 148, 367, 412, 435.
Lewis's, 6, 148.
Newfoundland, 296.
Northern Downy, 148, 395.
Northern Hairy, 395.
Northern Pileated, 6, 395.

Woodpecker, Pileated, 133, 367, 432.
Red-bellied, 133, 199, 413, 435.
Red-headed, 133, 148, 367, 431, 435.
Rocky Mountain Hairy, 6.
Southern Hairy, 133.
Texas, 413.
White-headed, 6.
Woodruff, E. Seymour, notice of his Report on the Causes of the Scarcity of the Ruffed Grouse in 1907, 97; obituary of, 218.
Woods, Hubbard, see Taylor, Thorne C.
Worthen, Charles K., obituary of, 332.
Wren, Baird's 88, 184, 311, 420.
Bewick's, 136, 152, 303.
Cañon, 88, 184, 314, 405, 420.
Carolina, 81, 82, 136, 195, 231, 263–269, 434.
House, 228, 357, 370, 399.
Guadalupe, 320.
Parkman's, 9, 303.
Rock, 8, 152.
Short-billed Marsh, 82, 186, 421.
Texas, 184.
Western House, 152, 303.
Western Winter, 9.
Wren, Winter, 357, 370.
Wright, Horace W., a nesting of the Blue-winged Warbler in Massachusetts 337–345; notice of his 'Birds of the Boston Public Garden,' 443.

XANTHOCEPHALUS xanthocephalus, 149, 371–389, 396.
Xema sabini, 278, 408.
Xenopicus albolarvatus, 6.

YELLOW-LEGS, 146, 299, 305, 393.
Greater, 299, 393.
Yellow-throat, 435.
Maryland, 136, 369, 399.
Western, 8, 152, 183, 420.

ZAMELODIA ludoviciana, 134, 369, 398, 418.
melanocephala, 8, 151.
Zenaidura macroura, 6.
macroura carolinensis, 6, 132, 147, 394, 411.
Zonotrichia albicollis, 150, 368, 397, 416.
coronata, 69, 416.
leucophrys, 150, 359, 397.
leucophrys gambeli, 62.
querula, 150, 416.

ERRATA.

Page 61, lines 1 and 2, for **Totanus** read **Helodromas**.
" 88, line 4 from bottom, for **Thryothorus** read **Thryomanes**.
" 95, line 12, for *Procelaria* read *Procellaria*.
" 146, " " from bottom, for **Helodramas** read **Helodromas**.
" 147, " 24, for **kreideri** read **krideri**, and for KREIDER read KRIDER.
" 305, lines 2 and 5, for Wilington read Wilmington.
" 370, line 13, for **hyemalis** read **hiemalis**.
" 396, line 7, for **Zanthocephalus zanthocephalus** read **Xanthocephalus xanthocephalus.**

VOLUME XXV, 1908.

Page 406, line 6, for Daniel read Robert.
" 2, from bottom (in footnote), for sister read daughter; for Elington read Edington.

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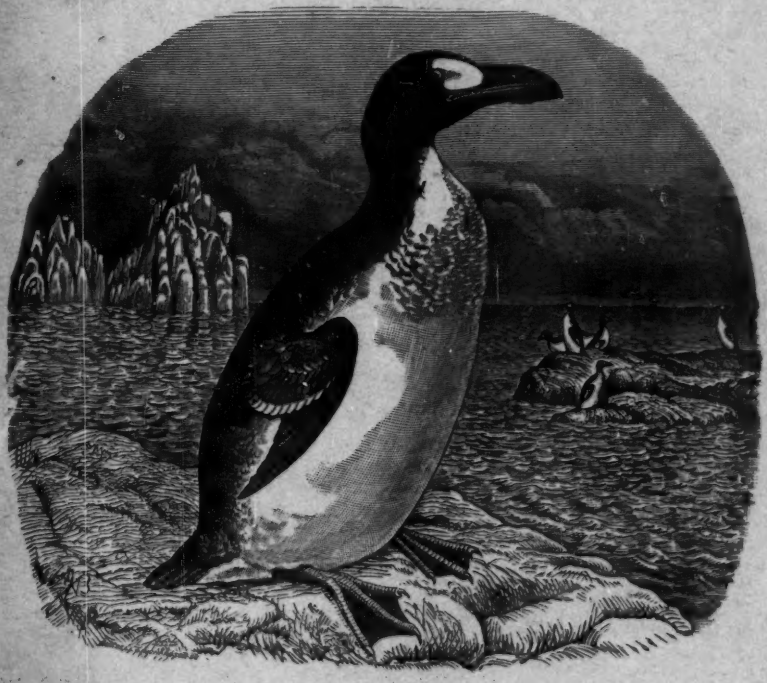

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CONTENTS.

PAGE

A NESTING OF THE BLUE-WINGED WARBLER IN MASSACHUSETTS By *Horace W. Wright* 337

AN INQUIRY INTO THE HISTORY OF THE CURRENT ENGLISH NAMES OF NORTH AMERICAN LAND BIRDS. By *Spencer Trotter* 346

SUMMER BIRDS OF IRON COUNTY, MICHIGAN. By *Eliot Blackwelder* . . . 363

A STUDY OF A BREEDING COLONY OF YELLOW-HEADED BLACKBIRDS; INCLUDING AN ACCOUNT OF THE DESTRUCTION OF THE ENTIRE PROGENY OF THE COLONY BY SOME UNKNOWN NATURAL AGENCY. By *Thomas S. Roberts, M. D.* (Plates V–XIV.) 371

BIRDS OF CENTRAL ALBERTA. By *Sidney S. Stansell* 390

THE BIRDS OF COLORADO — THIRD SUPPLEMENT. By *Wells W. Cooke* 400

THE SINGULAR CASE OF THE BLACK DUCK OF NORTH AMERICA. By *Jonathan Dwight, Jr., M. D.* 422

GENERAL NOTES.— Capture of an American Eider at Chicago, 426; Breeding of the Least Bittern (*Ardetta exilis*) in Chester Co., Pa., 426; The Black Rail in Maryland, 427; First Appearance of the Sanderling in the Vicinity of Detroit, 427; *Actodromas fuscicollis* in Philadelphia County, Pa., 427; The Spruce Partridge in the White Mountains, 428; The Passenger Pigeon — Only One Pair Left, 429; The Black Gyrfalcon in Connecticut, 429; The Acadian Flycatcher in Ontario, 430; European Starling Nesting at Princeton, New Jersey, 430; The Meadowlark in Maine, and Other Notes, 430; Note on the Red Crossbill and the Pine Finch in South Carolina, 432; The Grasshopper Sparrow at Ottawa, Ontario, 432; The Prairie Warbler (*Dendroica discolor*) in Northern Ontario, 432; Breeding of the Mockingbird near Boston, 433; The Carolina Wren in Washtenau County, Michigan, 434; Brown Creepers Nesting near St. Louis, 434; A Colony of Hermit Thrushes at Yaphank, Long Island, N. Y., 435; North Carolina Notes, 436; Notes from Crawford Notch, N. H., 437; Additions to the List of Birds of Allegany and Garrett Counties, Western Maryland, 437; The Food of Several Maine Water-Birds, 438; Hybridism and Generic Characters in the Trochilidæ, 440.

RECENT LITERATURE.— Cory's 'The Birds of Illinois and Wisconsin,' 442; Wrights' 'Birds of the Boston Public Garden,' 443; Hersey and Rockwell on the Birds of the Bare Lake District, Colorado, 445; McGregor on Birds from Northern Mindanao, 445; McGregor on Philippine Ornithological Literature, 445; Marble on Birds of New Hampshire, 446; Reed's 'Bird Guide', 446; Cherrie on New Birds from the Orinoco Region and Trinidad, 446; Miller's Experiment in the Colonization of the House Martin, 446; Walcott's Analysis of the Bird Fauna of Nebraska, 447; Publications Received, 448.

CORRESPONDENCE.— New Edition of Ridgway's Nomenclature of Colors, 450; Avian Osteology and Game Bird Protection, 450.

NOTES AND NEWS.— Obituary: William H. Brownson, 453. New Ornithological Works in Prospect, 453; Personal Notes, 454; The New Quarters of the Division of Birds in the National Museum, 454; The Bristol County Academy of Sciences, 455; Bird Protection Notes, 455; Annual Meeting of the American Ornithologist's Union, 456.

INDEX 457

ERRATA 483

CONTENTS iii

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